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ABSTRACT

The tentative guide in visual communications for senior high schools is part of a series of industrial arts curriculum materials developed by the State of Louisiana. The outline format includes performance objectives with suggested activities and resources for the topics of creativity, graphic design, photographic composition and communications, communication transmission, and systems analysis. Students are given the opportunity to design, plan, and complete appropriate assignments and learn of careers related to those areas of work. A lengthy section of student activities and instructional aids is appended. Included in this section are instructional diagrams and pictorials, handout sheets, information sheets, and learning activities. A bibliography of instructional resources including audiovisual aids and recommended equipment completes the document. (NJ)

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INDUSTRIAL ARTS CURRICULUM GUIDE

GRADES - 9-12

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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VISUAL COMMUNICATIONS

TENTATIVE

BULLETIN No. 1325

1974

PREFACE

The curriculum guides developed for implementation of the Louisiana State Plan for Career Education are dedicated to the students of Louisiana. The guides are based upon the philosophy of maximum development of the individual--and thereby--the maximum development of society. There are many components of the educational process; and career education, a facet of total education, prepares the individual for a meaningful and productive life.

The fundamental concept of career education is that all types of educational experiences, curricula, instruction, and counseling should involve preparation for economic independence, personal fulfillment, and an appreciation for the dignity of work.

Maintaining the curriculum disciplines as the structural framework, the guides seek to enhance the total education of the individual, incorporating career concepts into the planned educational experiences of our youth.

The implementation of the objectives and activities presented in the guides is independent of any organizational pattern. The underlying philosophy is that of providing for continuous pupil progress. The curriculum provides a continuum of systematic, sequential development from kindergarten through high school. Recognizing that each student is a unique individual, a continuous progress curriculum enables each student to progress at his own rate. This fosters success which reinforces the positive self-concept of the individual and contributes to his personal, social, and occupational effectiveness.

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Education which is dedicated to the maximum development of the individual offers individualized instruction. These guides promote that concept, for individualized learning is the result of individualized instruction. This concept does not imply a one-to-one teaching ratio, but does offer a curriculum structure which allows for instruction prescribed to meet the needs of the individual--whether in a large group, a small group, or in an individual learning situation.

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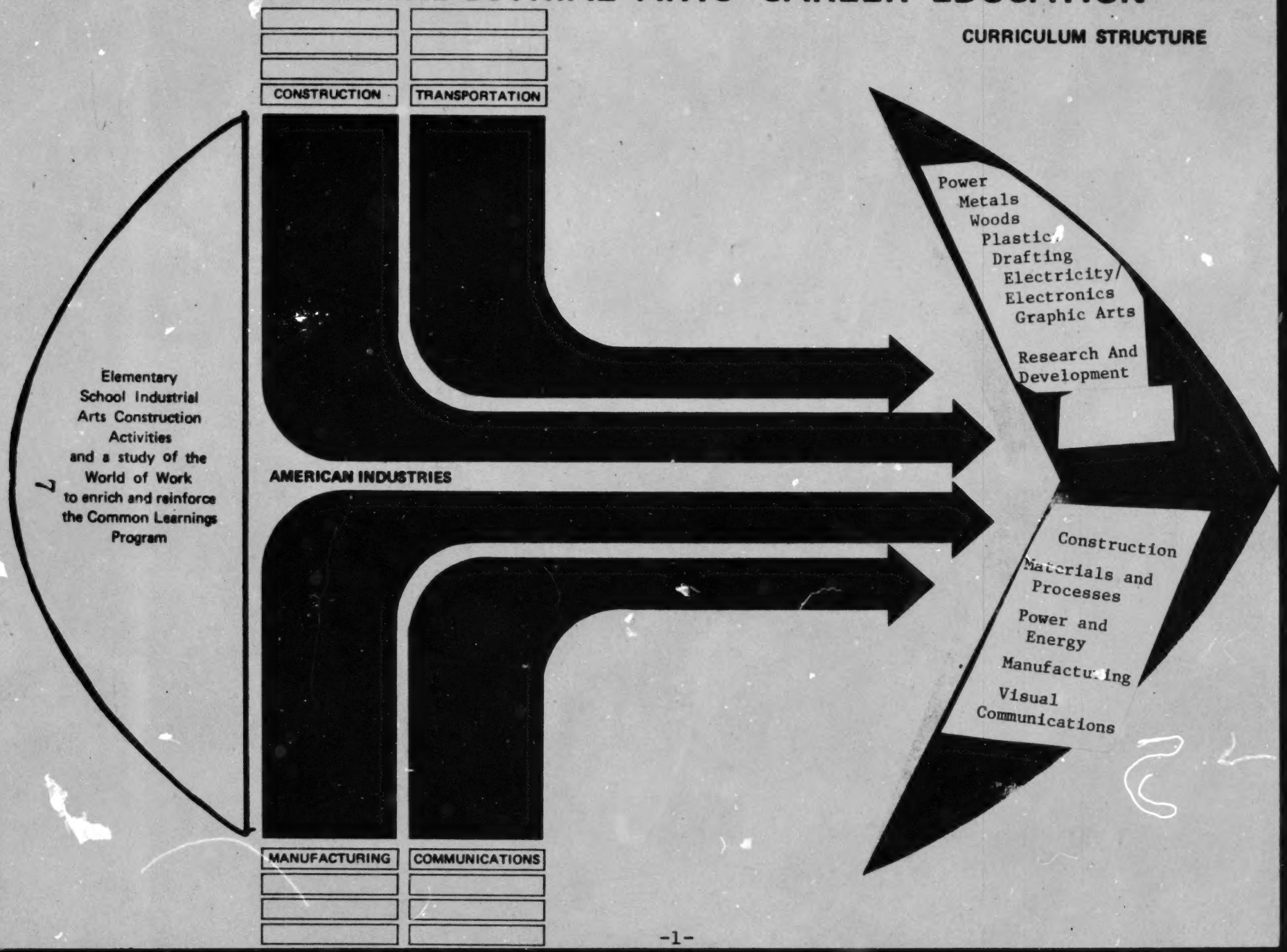

VISUAL COMMUNICATIONS

Overview

As a result of industrial technology's advancing at a rapidly accelerating rate, new technological developments are being produced and integrated into our culture at an astonishing rate. The impact of these changes upon our society has created serious economic, social, and psychological problems. Education, in general, is having difficulty in preparing students to meet these problems. Thus, there is a need for new industrial education courses which will prepare individuals to manage modern technology and to control its environmental, sociological, and psychological impact upon our culture.

In this course the student, through "hands on" experiences with tools and materials and study of the processes and techniques of communications technology, will have an opportunity to make tentative career decisions, analyze employment trends, and experience guidance in the various careers related to the visual communications industry.

Attention is given to helping students discover their technical abilities and interests in obtaining career information. Students have opportunities to design, plan, and complete appropriate work assignments and learn of the careers related to each of those areas of work. Both individual and group educational experiences are encouraged. Students will use practical application of language arts, mathematics, and the sciences in solving meaningful problems. They will be able to use safe work habits and participate actively in the operation and management of the visual communications laboratory.

The uses of this guide should recognize that complete activities to encompass the entire body of knowledge as depicted in this document are not inclusive,though certain activities are suggested. It is impossible to teach in one semester, one year, or in one program the intricacies of the total body of knowledge. It is possible, however, to teach the concepts of how each communication system interrelates to the total communications industry. Thus, this document seeks to provide the teacher with a guide to teach concepts, techniques, and careers associated with the visual communications industry.

The materials, activities and general direction of this publication were adopted from the Kansas State Department of Education Conceptional Base for Industrial Education Project. A special thanks is extended to Lawrence Foth, State Supervisor of Industrial Arts for aiding Louisiana Industrial Arts teachers in the publication.

VISUAL COMMUNICATIONS

COURSE GUIDE

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COURSE: VISUAL COMMUNICATIONS

TOPIC OUTLINE	PERFORMANCE OBJECTIVES	SUGGESTED ACTIVITIES	RESOURCES
I. Visual Communications			
A. Overview	Students will be able to: (1) Define visual communication. (2) Name several methods of visual communication. (3) State three goals of the communications industry.	Teacher will pre-test students. Discussion-demonstration.	Appendix B
B. Processes	Students will be able to discuss the five points of the communication process - Message-(1) Conception (2) Development (3) Transmission (4) Reception (5) Feedback	Discussion of importance of entire communication process and use of message relay from student to student to exemplify ease of confusing messages through various processes.	
C. Media	Students will be able to describe: (1) Drawings (2) Exhibits and displays (3) Charts and posters (4) Motion pictures (5) Television (6) Slides and film strips (7) Projectiles (8) Microfilm (9) Photographs (10) Computer graphics (11) Printed material	Discussion of the effects of visual materials upon daily living and need for improved communications.	
II. Light, Vision, and Perception			Appendix B
A. Light	Students will be able to cite and discuss orally the physical properties of light.	Instructor will use a spectrograph to demonstrate various wave lengths of light, mirrors to show reflection,	

TOPIC OUTLINE	PERFORMANCE OBJECTIVES	SUGGESTED ACTIVITIES	RESOURCES
		lenses and prisms to show refraction, and sunglasses to show polarization.	
B. Vision	Students will be able to describe the various parts of the eye and discuss the theory of sight.	Discussion with use of wall chart (breakdown of eye parts) or model.	
C. Perception	Students will be able to explain concept of visual perception.	Use blind men and elephant parable, while teacher tells story on overhead. See Appendix A.	Appendix A Instructional Aid II-C
III. Creativity	Students shall be able to: (1) State characteristics of creativity. (2) Give examples of creativity in life. (3) List types of creativity.	Class will view a slide and write their interpretations of its meaning.	Appendix B
IV. Graphic Design			Appendix B
A. Elements and Principles of Design	Students will be able to distinguish between these elements of design: (1) Line (2) Shape (3) Form (4) Color (5) Value (6) Texture Students will know and be able to describe the following principles of design: (1) Balance (2) Dominance (3) Rhythm (4) Unity	Students will use design elements and principles in construction of a collage.	

TOPIC OUTLINE	PERFORMANCE OBJECTIVES	SUGGESTED ACTIVITIES	RESOURCES
B. Symbology	Students must be able to define and apply various symbols to the communications processes.	Students will develop non-lingual symbols for personal trademarks.	
V. Photographic Composition			Appendix B
A. Elements	Students will be able to discuss various elements of photographic design, such as: (1) Relation of light, sound, subject, and camera (2) Center of interest (3) Shutter speed (4) Full-frame composition (5) Exposure setting (6) Subject placement (7) Principles of design	Class discussion of elements of photographic composition, resulting in effective communications. Students will use a polaroid camera to shoot several photographs to communicate a single pre-determined theme.	
B. Techniques	Students will be able to demonstrate various photographic techniques, such as: (1) Dominance (2) Framing (3) Silhouettes (4) Selective Focus (5) Reflections	Discussion of several techniques which can be used to create effective photographic composition. Students will use a polaroid camera to shoot several photographs to demonstrate one of the discussed techniques.	
VI. Criteria for Selecting A Medium	Students will be able to list and describe the criteria used in the selection of appropriate medium for a given situation or message.	Instructor will have class compose a criteria sheet for selecting medium. See Appendix A.	Appendix B Appendix A, Student Activity VI
VII. Photographic Image Devices			Appendix B
A. Cameras	Students will be able to identify	Instructor will display various types	Appendix A

TOPIC OUTLINE	PERFORMANCE OBJECTIVES	SUGGESTED ACTIVITIES	RESOURCES
	and describe various types of cameras.	of cameras and equipment.	Instructional Aid and Student Activity VII-A
B. Camera Settings	Students will be able to explain the relationship between: (1) Aperture settings (F stops) (2) Shutters and adjusting shutter speeds (3) Focus (relationship to focal length) (4) Depth of field (5) Parallel	Instructor will demonstrate the various parts of a camera and camera settings in front of the class with the actual camera in hand. Students will then be given the opportunity to operate the camera.	
C. Lighting	Students will be able to describe differences between various types of photographic lighting, such as: (1) Daylight (2) Artificial (3) Photoflash (4) Photoflood (5) Strobe Students will be able to use a light meter	Discussion. Then students will use a light meter to measure intensities of various types of light.	
D. Filters	Students will be able to discuss principles of filters, such as: (1) Subtracting certain colors from the spectrum (2) Polarizing light (3) Decreasing light intensity Students will know what type of filter to use for a given situation.	Discussion and display of various filters. Instructor will set up display of pictures taken of same subject, but using various filters. Students will compare different results.	

TOPIC OUTLINE	PERFORMANCE OBJECTIVES	SUGGESTED ACTIVITIES	RESOURCES
E. Picture Taking	Students will be able to: (1) Determine correct exposure using tables, charts, and light meters. (2) Operate camera correctly (film loading, and setting camera adjustments). (3) Set up camera and equipment for given situations.	Have class divide into groups, with each group demonstrating how to take a picture with different types of cameras.	
VIII. Photographic Image Carriers			Appendix B
A. Film Image Cameras	Students will be able to distinguish between the four types of image carriers and name applications for each: (1) Black and white negatives (2) Black and white positives (3) Color negatives (4) Color positives	Discussion-illustration, and use of samples of each type.	
	Students will be able to discuss different film characteristics, such as: (1) Speed (ASA-DIN) (2) Contrast (3) Graininess (4) Sensitivity	Discussion and laboratory activity.	Appendix A, Instructional Aid and Student Activity VIII-A
B. Developing Film Image Carriers	Students will be able to develop black and white film.	Discussion and demonstration of the development of black and white film, then students will develop a roll of film. Safety on handling chemicals in the darkroom should be discussed.	

TOPIC OUTLINE	PERFORMANCE OBJECTIVES	SUGGESTED ACTIVITIES	RESOURCES
C. Photographic Paper Image Carriers	Students will be able to discuss paper: (1) Imaging techniques (a) Contact printing (b) Enlarging (c) Polaroid process (d) Direct positive (2) Bases (a) Single weight (b) Double weight (c) Document weight (3) Surfaces (a) Baryta (b) Glossy paper (c) Semi-matte paper (d) Matte (4) Emulsions (a) P.O.P. - printing-out paper (b) D.O.P. - developing-out paper	Discussion and examples of prints made on each type of paper.	
D. Developing Photographic Paper Image Carriers	Students will be able to describe: (1) Developing process (a) Exposure (b) Developer (c) Stop bath (d) Fixer (e) Washing (f) Drying (2) Methods of exposure (a) Contact printing (b) Enlargement (3) Procedure for contact printing and enlarging (4) Techniques for printing and enlarging (a) Cropping (b) Vignetting	Instructor should demonstrate exposing and developing photographic papers, then students will make photographic prints. Safety pertaining to handling of chemicals in the darkroom should be discussed.	

TOPIC OUTLINE	PERFORMANCE OBJECTIVES	SUGGESTED ACTIVITIES	RESOURCES
	(c) Dodging (d) Diffusing (e) Burning in (5) Procedure and chemicals for processing prints (a) Developer (b) Stop bath (short stop) (c) Fixing solution		
E. Electro-magnetic Carriers and Videotape Recording	Students will be able to describe and operate drum, disc, and tape recorders. Students will be able to make the following shots with a camera: (1) Close-up (2) Zoom (3) Mid-shot (4) Extreme close-up (5) Banks (a) Wide (b) Fade (6) Special effects (a) Fade (b) Cut (c) Superimposition (d) Dissolve (e) Split screen (f) Corner insert	Discussion-illustration. Visit to local television station. Allow students to experiment with the operation of the equipment.	
IX. Exploration in Photographic Communication	Students will be able to design photographic media materials which support the fundamentals of communication design. Students will be able to produce various photographic media materials.	Class will divide into groups with each group selecting and performing two or more of the "Student Activities" described in the Appendix.	Appendix B Appendix A, Student Activity IX- 1-5

TOPIC OUTLINE	PERFORMANCE OBJECTIVES	SUGGESTED ACTIVITIES	RESOURCES
A. Planning A Team Approach	Students will be able to relate ideas to a group so as to accomplish a set goal. Students will be able to develop reasonable planning processes which they will then be able to use to solve given situations.	Instructor will divide class into groups, with each group then choosing a team leader, communication specialist, content specialist, communication designer, and technical staff. These groups will then work on assignments in the following units.	
B. Analysis of A Communication Problem	Students will be able to distinguish between: (1) Client (2) Audience (3) Budget (4) Time allowance Students will be able to: (1) Identify communicating idea (2) Identify behavioral changes to be experienced by the audience (3) Build organizational content outlines Students will be able to select media based upon: (1) Type of visual product (2) Size and length of product (3) Sound requirement (4) Script requirement (5) Facilities and equipment Students will be able to organize a storyboard.	Instructor will assign each small group a media and a problem to be solved. See Appendix for detailed activity.	

TOPIC OUTLINE	PERFORMANCE OBJECTIVES	SUGGESTED ACTIVITIES	RESOURCES
C. Completing the Presentation - Film and Paper Carriers	Students will be able to edit and prepare for presentation or use: (1) Photographic materials (2) Audio variations (3) Recordings of audio sequences (4) Writing of cutlines (5) Other considerations (a) Copyrights (b) Title	Discussion. Then each group of students will prepare a storyboard of its presentation and a script, if necessary.	
D. Completing the Presentation - Electromagnetic Carrier	Students will be able to plan both video and audio parts, such as: (1) Video (a) Action camera shots (b) Graphic camera shots (c) Camera shot transitions (2) Audio (a) Narration (b) Sound effects (c) Music Students will be able to write a script with: (1) Video-audio coordination (2) Cues (3) Audio column and video column Students will be able to record presentations using: (1) Personnel - cameramen, director, floor manager, etc. (2) Rehearsal - assignment of roles, cueing, directing, etc. (3) Final recording Students will be able to make camera shots and movements, such as:		

TOPIC OUTLINE	PERFORMANCE OBJECTIVES	SUGGESTED ACTIVITIES	RESOURCES
	(1) Extreme close-up (XCU) (2) Face shot (3) Big close-up (BCU) (4) Close-up (CU) (5) Medium close-up (MCU) (6) Mid-shot (MS) (7) Medium shot (Med. S) (8) Medium long shot (MLS) (9) Long shot (LS) (10) Two shot (11) Three shot (12) Group shot	Continue group work of preparing storyboards and scripts for the assigned communication projects.	
	Students will be able to set up television crew: (1) Director (2) Cameramen (3) Floor manager (4) Technical director		
E. Making A Photographic Presentation	Students will be able to use various photographic techniques as communication media: (1) Television (2) Still photography (3) Movies (4) Slide photography (5) Film strips (6) Equipment (projection)	Discussion. Then students will make a presentation using their choice of techniques.	
X. Printed Graphic Communications Orientation	Students shall be able to identify several of the basic printing processes: (1) Writing (2) Hand copies manuscripts (3) Chinese block lettering (4) Gutenberg's movable type printing process	Discussion-illustration.	Appendix B

TOPIC OUTLINE	PERFORMANCE OBJECTIVES	SUGGESTED ACTIVITIES	RESOURCES
	(5) Platen press (a) Cylinder (b) Rotary (6) Linotype (7) Lithography (a) Offset (b) Photo (8) Gravure (9) Mechanical composition (cold type) (10) Photo composition (cold type) (11) Automated composition (12) Electrostatics		
XI. Basic Reproduction Systems			Appendix B
A. Screen Process	Students will be able to describe the silk screen process, using the following methods: (1) Lacquer-film (2) Film-stencil Students will be able to list and describe jobs available in the screen process business, such as: (1) Advertising (2) Layout (3) Screen construction and preparation (4) Allied areas (a) Sales (b) Etc.	Discussion-demonstration. Students will develop their own designs and actually print simple silk screen job. Safety information pertaining to the solvents and cleaning fluids will be included in the discussion.	
B. Letterpress	Students will be able to discuss the origins of the letterpress in: (1) China (2) Europe (3) America	Discussion-demonstration.	Appendix A, Instructional Aid XI-B

TOPIC OUTLINE	PERFORMANCE OBJECTIVES	SUGGESTED ACTIVITIES	RESOURCES
	Students will be able to compose type.	Students will do exercise involving centering, flush left, flush right, and straight composition to prescribed length after demonstration of each by instructor. Instructor will demonstrate and perform the operations of dumping a stick, placing in galley, tying type, and distributing type and leads and slugs.	
	Students will be able to give examples of machine set type: (1) Linotype (2) Ludlow (3) Stereotyping	Discussion and field trip to local printing shop. Safety information pertaining to the use and handling of hot-lead type will be included in the discussion.	
	Students will be able to list and describe jobs available in letter-press composition, such as: (1) Foreman (2) Make-up/layout (3) Compositor (4) Proof reader (5) Stereotyper (6) Engraver (7) Equipment maintenance (8) Equipment sales	Discussion-film.	
	Students will be able to identify the following types of presses: (1) Hand lever (2) Platen (3) Cylinder (4) Rotary	Discussion-illustration and visit to local printing shop.	

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TOPIC OUTLINE	PERFORMANCE OBJECTIVES	SUGGESTED ACTIVITIES	RESOURCES
	Students will be able to set up and operate a press for a work job.	Instructor will demonstrate procedure, then students will perform work operation. Safety information will be emphasized on operating.	
	Students will be able to list and describe jobs available in letterpress operation, such as: (1) Lock-up man (2) Pressman (3) Pressman's helper (4) Salesman (supply) (5) Maintenance (6) Foreman (printing room)		
C. Lithographic	Students will be able to explain the differences between letterpress and lithographic printing.	Discussion-demonstration.	
	Students will be able to prepare and paste-up the three types of image carriers: (1) Direct image (masters) (2) Photographic (3) Electrostatic	Discussion-demonstration. Then students will prepare a sample of each carrier type.	
	Students will be able to make line and halftone copy using lithographic film and processing procedures.	Discussion-demonstration. Then students will make one each, line and halftone print, using method demonstrated by instructor.	
	Students will be able to explain the effects copy reduction and enlargement have upon an exposure.	Discussion-illustration.	

TOPIC OUTLINE	PERFORMANCE OBJECTIVES	SUGGESTED ACTIVITIES	RESOURCES
	Students will be able to calculate copy reduction and enlargement percentages.	Discussion.	
	Students will be able to discuss the history of lithographic printing.	Discussion.	
	Students will be able to differentiate between and describe the various lithographic press systems: (1) Dampening (a) Fountain and fountain roller (b) Ductor roller (c) Form roller (d) Fountain solution (2) Inking (a) Fountain and fountain roller (b) Ductor roller (c) Distribution roller (d) Form roller (e) Ink (3) Impression (a) Plate (b) Blanket (c) Impression (4) Paper feed (a) Paper table (b) Height control (c) Stack guides (d) Suction feet and blowers (e) Pull-out rollers (5) Paper registration (a) Conveyor tapes (b) Skid wheels (c) Paper hold-down bands (d) Jogger (e) Side guide (f) Vertical positioning	Discussion-illustration.	

TOPIC OUTLINE	PERFORMANCE OBJECTIVES	SUGGESTED ACTIVITIES	RESOURCES
	(g) Grippers (6) Paper delivery (a) Ejector rollers (b) Delivery tables (c) Stacking mechanism		
XII. Specialized Reproduction Systems	Students will be able to discuss the history of gravure printing.	Discussion.	Appendix B
	Students will be able to compare gravure printing to the three major printing processes, by stating the advantages and disadvantages of each.	Discussion-illustration.	
	Students will be able to list and describe the various types of duplicating processes.	Discussion-demonstration.	
	Students will be able to discuss the advantages and disadvantages of various duplicating processes and state the major areas of application of each.		
XIII. Preparing Graphic Materials for Distribution			Appendix B Appendix A, Student Activity XIII- 1-5
A. Binding Operations	Students will be able to define and discuss terms associated with bindery operations: (1) Paper cutting (2) Collating (3) Folding of paper (4) Perforating (5) Die cutting (6) Bindery decoration	Discussion-demonstration. Safety information pertaining to operating various paper cutting and binding machines should be included in the discussion.	

TOPIC OUTLINE	PERFORMANCE OBJECTIVES	SUGGESTED ACTIVITIES	RESOURCES
B. Types of Bindings	Students will be able to describe various types of bindings and state their primary uses: (1) Mechanical (a) Spiral (b) Plastic cylinder (2) Looseleaf (a) Rings (b) Post (c) Base and prong (d) Friction (3) Wire staple (a) Saddle (b) Side (4) Sewn or case (a) Saddle (b) Flat (c) Signature (5) Perfect	Discussion-demonstration.	
	Students will be able to construct several various types of bindings.	Students will be allowed to make two or more types of bindings using equipment demonstrated by the instructor. Safety information should be discussed concerning various bindery operations.	
XIV. Technical Graphic Communication			Appendix B
A. Concept	Students will be able to define and state examples of various methods of technical graphic communications, such as: (1) Numerical/control drafting (2) Manual drafting (3) Photo-mechanical drawings	Discussion-illustration. Then instructor will have certain students verbally instruct others to duplicate given geometric figures.	

TOPIC OUTLINE	PERFORMANCE OBJECTIVES	SUGGESTED ACTIVITIES	RESOURCES
	(4) Models and prototypes (5) Renderings (6) Computer printouts (7) Storage and retrieval (8) Cut and paste drawings		
B. Reason For	Students will be able to discuss the relationship which technical graphics has with relation to which manufactured goods and products consumers purchase.	Discussion-demonstration. Instructor will show several different types of technical drawings and explain how they are used.	Appendix A, Student Activity XIV-B
XV. Technical Communication on A Two-Dimensional Plane			Appendix B
A. Sketching	Students will be able to describe the alphabet of lines, measure and sketch: (1) Lines (2) Squares and rectangles (3) Equilateral triangles (4) 45° and 30° - 60° triangles (5) Circles (6) Ellipses (7) Hexagons (8) Octagons (9) Right triangles	Discussion-demonstration by instructor. Then students will make sketches of the listed geometric figures on assigned work sheets.	Appendix A, Student Activity XV-A
B. Isometric Drawing	Students will be able to explain what isometric drawings are, and dimension and sketch: (1) Isometric circles (2) Isometric cubes (3) An isometric drawing from an orthographic drawing	Discussion-demonstration. Then students will make sketches of the items listed in the objectives on assigned work sheets.	Appendix A, Instructional Aid and Student Activity XV-B

TOPIC OUTLINE	PERFORMANCE OBJECTIVES	SUGGESTED ACTIVITIES	RESOURCES
	(4) Non-isometric lines		
C. Oblique Drawing	Students will be able to explain what oblique drawings are, and dimension and sketch a: (1) Cavalier oblique drawing (2) Cabinet oblique drawing (3) General oblique drawing	Discussion-demonstration. Then students will make cavalier, cabinet, and general oblique sketches of object assigned by instructor.	Appendix A, Student Activity XV-C
D. Orthographic Projection	Students will be able to explain the theory of what orthographic projection is, and the relationship of the placement of the views to one another.	Discussion-demonstration.	Appendix A, Student Activity XV-D
	Students will be able to draw hidden and center lines in orthographic projections.	Discussion-illustration. Then students will draw orthographic projections of objects assigned by instructor.	
	Students will be able to draw orthographic projections using the correct procedure.		
E. One-Point Perspective	Students will be able to differentiate between and describe parallel, angular, and oblique perspective drawings.	Discussion-demonstration. Then students will make one-point perspective drawing of object assigned by instructor.	Appendix A, Student Activity XV-E
	Students will be able to define and recognize: (1) Points (a) Station (b) Vanishing (2) Planes (a) Picture (b) Ground (c) Horizon		

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TOPIC OUTLINE	PERFORMANCE OBJECTIVES	SUGGESTED ACTIVITIES	RESOURCES
	Students will be able to construct a one-point perspective drawing.		
F. Two-Point Perspective	Students will be able to differentiate between and describe parallel, angular, and oblique perspective drawings. Students will be able to define and recognize: (1) Points (a) Station (b) Vanishing (2) Planes (a) Picture (b) Ground (c) Horizon Students will be able to construct a two-point perspective drawing.	Discussion-demonstration. Then students will make two-point perspective drawing of object assigned by instructor.	Appendix A, Student Activity XV-F
G. Standards	Students will be able to define "symbol", explain how symbols can be likened to words, and discuss various uses of symbols, such as: (1) Combinations communicate technical information (2) Simplified way of designating what only words can do otherwise (3) Provide ways to universal meaning (4) Economical use of image area (5) Economical use of reader's time Students will be able to differentiate between various types of	Discussion-demonstration. Discussion-illustration, with instructor sketching various symbols on chalkboard.	

TOPIC OUTLINE	PERFORMANCE OBJECTIVES	SUGGESTED ACTIVITIES	RESOURCES
	symbols, such as: (1) Data symbols (a) Specifications (2) Pictorial symbols (a) Diagrams (b) Line formations		
	Students will be able to discuss where various symbols may be found, such as: (1) Standards manuals (2) Data banks of computers (3) Society reference materials (4) Associations and agencies (a) American National Standards Institute (ANSI) (b) Military	Discussion. Then instructor will have students develop their own symbols for various objects, and use various books and periodicals to locate the standardized symbols which represent the same objects which the students drew their "symbols" of, and thus compare the similarities or differences.	
H. Dimensioning and Tolerancing	Students will be able to discuss what dimensioning and tolerancing are, and differentiate between and describe the two types of dimensioning: (1) Angular (2) Rectangular (a) Datum dimensioning (b) Ordinate dimensioning	Discussion-demonstration.	
	Students will be able to define, and discuss terms associated with tolerancing: (1) Allowance (2) Clearance (3) Tolerance (a) Unilateral or bilateral from a datum plane (b) True position (4) Limits	Discussion-demonstration.	

COURSE: VISUAL COMMUNICATIONS

TOPIC OUTLINE	PERFORMANCE OBJECTIVES	SUGGESTED ACTIVITIES	RESOURCES
	Students will be able to dimension and tolerance drawings	Instructor will have students dimension and place tolerances on various work sheets.	
I. Sectioning	Students will be able to define sectioning and discuss the types of sections: (1) Full section (2) Half section (3) Other types of sections	Discussion-demonstration.	Appendix A, Student Activity XV-I
	Students will be able to draw section views, using the correct sectioning lines and symbols.	Discussion-demonstration. Then students will draw various sections, lines, and symbols on assigned work sheets.	
J. Axonometric Drawing	Students will be able to define and compare the three types of axonometric drawings: (1) Isometric (2) Dimetric (3) Trimetric	Discussion-illustration.	
K. Drawing Instruments	Students will be able to describe and state uses of various drawing instruments, such as: (1) Drawing pencils (a) Grade index (b) Selection of proper pencil for each type of job (c) Sharpening pencils (2) Drawing erasers (a) Selection and use of (b) Erasing hints (3) T-Square (a) Parts of (b) Uses of (c) Care of	Discussion-demonstration. Then students will use each of the instruments demonstrated by completing instructor-assigned work sheets.	

TOPIC OUTLINE	PERFORMANCE OBJECTIVES	SUGGESTED ACTIVITIES	RESOURCES
	(4) Triangles (a) 45° and 30° - 60° (b) Adjustable (c) Uses of (d) Care of (5) Scales (a) Architect (b) Mechanical (c) Civil (d) Uses of (e) Reading scales (6) Compasses, curves, and templates (a) Parts, uses, and sharpening of a compass (b) Types and uses of irregular curves (c) Types and uses of templates (7) Dividers (a) Parts of (b) Uses of (8) Protractor		
XVI. Technical Graphic Communication Mechanics		The instructor will assign the "Toy Train Problem" to the class as a project to correlate all of the sections in this unit.	Appendix B Appendix A, Student Activity XVI
A. Recording the Idea	Students will be able to explain how ideas begin: (1) Evolve from problems (2) Evolve from needs (3) Evolve from research (4) Evolve from "brainstorming"	Discussion.	
	Students will be able to describe ideas by one or more of several different methods:	Students will solve instructor-assigned problems and record their ideas in sketches.	

COURSE: VISUAL COMMUNICATIONS

TOPIC OUTLINE	PERFORMANCE OBJECTIVES	SUGGESTED ACTIVITIES	RESOURCES
	(1) Sketching (a) Thumbnail (b) Rough (c) Refined (2) Calculating (3) Comparing Students will be able to record ideas by: (1) Sketching technique (2) Plotting on graph paper		
B. Developing the Idea	Students will be able to discuss function of design through the use of: (1) Standards (2) Aesthetic appeal (3) Safety factors (4) Environmental considerations (5) Consumer reactions (6) Dimensional limitations Students will be able to use models: (1) Soft mock-up (2) Hard mock-up (3) Appearance prototype (4) Scaled or full-size to evaluate ideas according to their design functions and communication levels.	Discussion.	
C. Imaging the Developed Idea	Students will be able to interpret and make detail and assembly working drawings.	Discussion-demonstration. Then students will develop a set of working drawings of a given object.	

TOPIC OUTLINE	PERFORMANCE OBJECTIVES	SUGGESTED ACTIVITIES	RESOURCES
D. Imaging the Developed Idea (Photo-Drafting)	Students will be able to use photo-drafting techniques, such as: (1) Photograph/line drawings (2) Scribed negatives (3) Negatives to drawings to develop a composite image of a given idea.	Discussion-demonstration. Then instructor will assign each student one of the methods listed, and student will construct an image according to the correct procedure.	
E. Imaging the Developed Idea (Paste-Up)	Students will be able to discuss the advantages and disadvantages of the cut and paste-up method of developing an image. (1) Reduces preparation time (2) Versatility of medium (3) Dirty drawings (4) Reuse of standard image portions (5) Revision of transparent originals (6) Composition revision of opaque originals	Discussion-demonstration. Instructor will provide student with an original drawing or work previously done by student, and student will then either add to, or delete from, the work such things as dimensions, notes, parts detail, etc.	
F. Specifications	Students will be able to discuss how specifications are used to supplement: (1) Working drawings (2) General notes (3) Preliminary designs (4) As a measuring standard (5) As a basis for design	Discussion.	
	Students will be able to explain where specification data may be obtained: (1) Codes and regulations (a) Building codes (b) Military standards (c) Safety regulations (d) Design performance requirements	Discussion-illustration. Then students will be allowed to view various specification charts and periodicals. Students will prepare a specification outline and rough draft manuscript of specifications of their developed ideas. The class will then discuss the purposes of specifications and how they aid	

TOPIC OUTLINE	PERFORMANCE OBJECTIVES	SUGGESTED ACTIVITIES	RESOURCES
	(2) Company practices and standards (3) Existing specifications (4) New products	in communicating technical material.	
G. Reproduction Systems	Students will be able to explain some of the purposes for reproduction systems: (1) Original drawings must be preserved and handled with care (2) Copies may be made to scale or the same size as the original (3) Originals may be "mass-produced" for distribution	Discussion.	
	Students will be able to name some reproduction systems, giving their uses, advantages and disadvantages. (1) Blueprint (a) Not dimensionally stable (b) Hard to write on (c) Takes abuse (d) Permanent (e) Easy to read in bright light (f) Produces negative (2) Diazo print (a) Cheapest (b) Produces positive (c) Dimensionally stable (d) Not durable to rough handling (e) Not permanent (3) Electrostatic (a) Size is limited (b) Quick, low quantity copies (4) Secondary original (a) Photographic contact (b) Sepia contact (c) Transparent (d) Not durable to rough handling	Students will make diazo print from working drawing and will also make a 35 mm black and white negative. Safety information pertaining to the handling of ammonia should be included.	

TOPIC OUTLINE	PERFORMANCE OBJECTIVES	SUGGESTED ACTIVITIES	RESOURCES
	(5) Photographic (a) Expensive (b) Slower process (c) High quality line transfer (d) Size desired easily adjusted (6) Microfilm (a) Small storage space (b) Easily printed with proper machine (c) Original must conform to certain standards (7) Lithography (a) High production - low cost (b) Stable, permanent		
H. Storage and Retrieval Systems	Students will be able to explain and give advantages and disadvantages of the three most common methods by which original or reproduced images may be stored or retrieved: (1) Vault (2) Magnetic disc or tape (3) Microfilm or microfiche	Discussion. Then students will establish a storage and retrieval system for their drawings, tracings, aperture cards, and blueprints.	
I. Technical Illustration	Students will be able to define what technical illustration is, and discuss its uses and the two major types of illustration: (1) Engineering (2) Publication	Discussion-illustration.	
	Students will be able to discuss and construct each of the three major types of drawings used for technical illustration purposes:	Students will prepare a rendering of a developed idea (either an assembly or exploded view, or both, depending upon the time and student desires).	

TOPIC OUTLINE	PERFORMANCE OBJECTIVES	SUGGESTED ACTIVITIES	RESOURCES
	(1) Axonometric (a) Isometric (b) Dimetric (3) Trimetric (2) Perspective (a) One-point (b) Two-point (c) Three-point (3) Shading techniques		
XVII. Transportation of Communication Material			Appendix B
A. Transportation	Students will be able to write a definition of transportation and be able to explain how transportation facilities developed.	Discussion.	
B. Transportation Shipping Rules	Students will list the different ways communication may be transported and list five of the nine general shipping rules, which are: (1) The value of a commodity (2) The density of the product (3) Perishability of product (4) The cost of performing a service (5) Ease of handling the goods (6) Quality which generally moves at one time (7) Volume and seasonability (8) Quantity which can be loaded in one vehicle (9) Likelihood of product damage		

TOPIC OUTLINE	PERFORMANCE OBJECTIVES	SUGGESTED ACTIVITIES	RESOURCES
C. Available Alternatives	Students will be able to list available routes of transportation, which are: (1) Railroad (2) Motor express (3) Water carrier (4) Air carrier	Discussion.	
XVIII. Communication Transmission			Appendix B
A. Wire and Cable	Students will be able to list three of five wire and cable transmission systems, which are: (1) Telegraph (coded entries) (2) Telegraph machines (3) Telephone (4) Tele-pictures (5) Cable types	Discussion.	
B. Broadcasting	Students will be able to briefly define and describe broadcasting transmission systems in each of the following areas: (1) Low and medium frequencies (2) High frequencies (3) VHF-UHF (4) Microwaves (5) Lasers		
C. Light	Students will be able to briefly describe communication transmission by light for the following: (1) Lenses (a) Enlarge (b) Reduction (2) Diffraction image	Instructor will demonstrate lenses, both enlarger and reduction types. Use small laser to demonstrate diffraction to the class. Safety information pertaining to operating lasers and eye protection	

TOPIC OUTLINE	PERFORMANCE OBJECTIVES	SUGGESTED ACTIVITIES	RESOURCES
	(3) Laser (a) Short distance (b) Lightweight systems (c) Holography	should be discussed.	
XIX. Visual Communication Industry			Appendix B
A. Management	Students will be able to discuss the role of management in industry, such as: (1) Planning (2) Organizing (3) Controlling	Discussion. Visit a large industry and meet with each department.	
B. Production	Students will be able to discuss the role of production in industry, such as: (1) Preparing raw materials (2) Making industrial materials (3) Making components (4) Combining components (5) Preparing for distribution		
C. Personnel	Students will be able to discuss the role of personnel in industry, such as: (1) Establishing accident prevention programs (2) Employment and occupations in manufacturing (3) Hiring and training (4) Working, advancing, and retiring (5) Organized labor and collective bargaining		

TOPIC OUTLINE	PERFORMANCE OBJECTIVES	SUGGESTED ACTIVITIES	RESOURCES
	Students will describe the organization of a typical visual communication industry and its major elements.	Discussion.	
	Students will be able to relate the systems approach to a specific industry and its operation.		
XX. Systems Approach			Appendix B
A. Critical Path Method	Students will describe the use of the systems approach in industry, using the critical path method: (1) Planning (2) Scheduling (3) Program evaluation and review		
	Students will analyze the different variables involved in the systems approach and will create a flow chart showing these variables pictorially.	Instructor should divide the class into several groups and appoint a leader to manage a visual communication industry. Each member of the group should have a specific job assigned to him. As a result, the whole group should develop a flow chart of the business organization.	
B. Systems Analysis	Students will be able to discuss the three parts of systems analysis, which are: (1) Goals (2) Variables (3) Alternate solutions		
C. Systems Design	Students will be able to discuss the three parts of systems design, which are:	Instructor should divide the class into small groups and give all groups the same goal which needs to be reached	

TOPIC OUTLINE	PERFORMANCE OBJECTIVES	SUGGESTED ACTIVITIES	RESOURCES
	(1) Selection (2) Preparation (3) Evaluation	systematically. Each group will then organize a systems approach to reach this goal and will present the results to the class for discussion. Example goal: Junior/Senior Prom poster, television commercial.	
XXI. Systems Analysis			Appendix B
A. Analysis of the Idea	Students will be able to discuss such questions as: (1) Did the student communicate his main idea well? (2) Did the student organize his idea visually? (3) Was the idea, subject, or question clearly defined, readily identified, and understood?	Discussion.	
B. Analysis of the Audience	Students will be able to discuss such questions as: (1) What will be the audience's probable reaction? (2) Does the work display a striking effect on others? (3) Was the audience included?	The instructor should select an idea and critique several examples of presenting it. Then small groups of students should do the same for other examples. Each group should present its critique to the class.	
C. Analysis of the Method	Students will be able to discuss such questions as: (1) Can the concepts involved be clearly explained with this method? (2) Is the medium chosen used effectively? (3) Is this the best medium available for the given concept?	Discussion.	

TOPIC OUTLINE	PERFORMANCE OBJECTIVES	SUGGESTED ACTIVITIES	RESOURCES
	(4) Will there be problems keeping the material up-to-date? (5) What problems may be encountered when using the materials?		
D. Analysis of the Design	Students will be able to discuss such questions as: (1) Is the idea well organized? (2) Does the material adequately serve the original purpose? (3) Is there a smooth flow from one idea or picture to the next? (4) Did the project show good craftsmanship?	Discussion.	
E. Analysis of the Reproduction Method	Students should be able to discuss the following questions: (1) Is the technical quality good? (2) Is the method of reproduction the best one suited to the medium used?	Discussion.	
F. Analysis of the Distribution Method	Students should be able to discuss the following questions: (1) Is the method of distribution compatible with the medium used? (2) Is the method of distribution the one best suited to the medium used? (3) Will the method of distribution adequately preserve and protect the product or project?	Instructor will divide the class into small groups and let each group present its systems approach using either projected media, photographic media, printed media, or technical communication media. Students should have freedom to choose which media they wish to use. Within each group, individuals should be assigned certain jobs for which each is responsible, such as: production, management, sales, advertising, etc. Then an evaluation of the presentation's pros and cons by the class as a whole.	

APPENDIX A

INSTRUCTIONAL AIDS

and

STUDENT ACTIVITIES

THE PARABLE OF

THE BLIND MEN AND THE ELEPHANT

by John Godfrey Saxe

It was six men of Indostan
   To learning much inclined,
Who went to see the Elephant
   (Though all of them were blind).
That each by observation
   Might satisfy his mind.

The First approached the Elephant,
   And happening to fall
Against his broad and sturdy side,
   At once began to bawl:
"God bless me! but the Elephant
   Is very like a wall!"

The Second, feeling of the tusk
   Cried, "Ho! what have we here
So very round and smooth and sharp?
   To me 'tis very clear
This wonder of an Elephant
   Is very like a spear!"

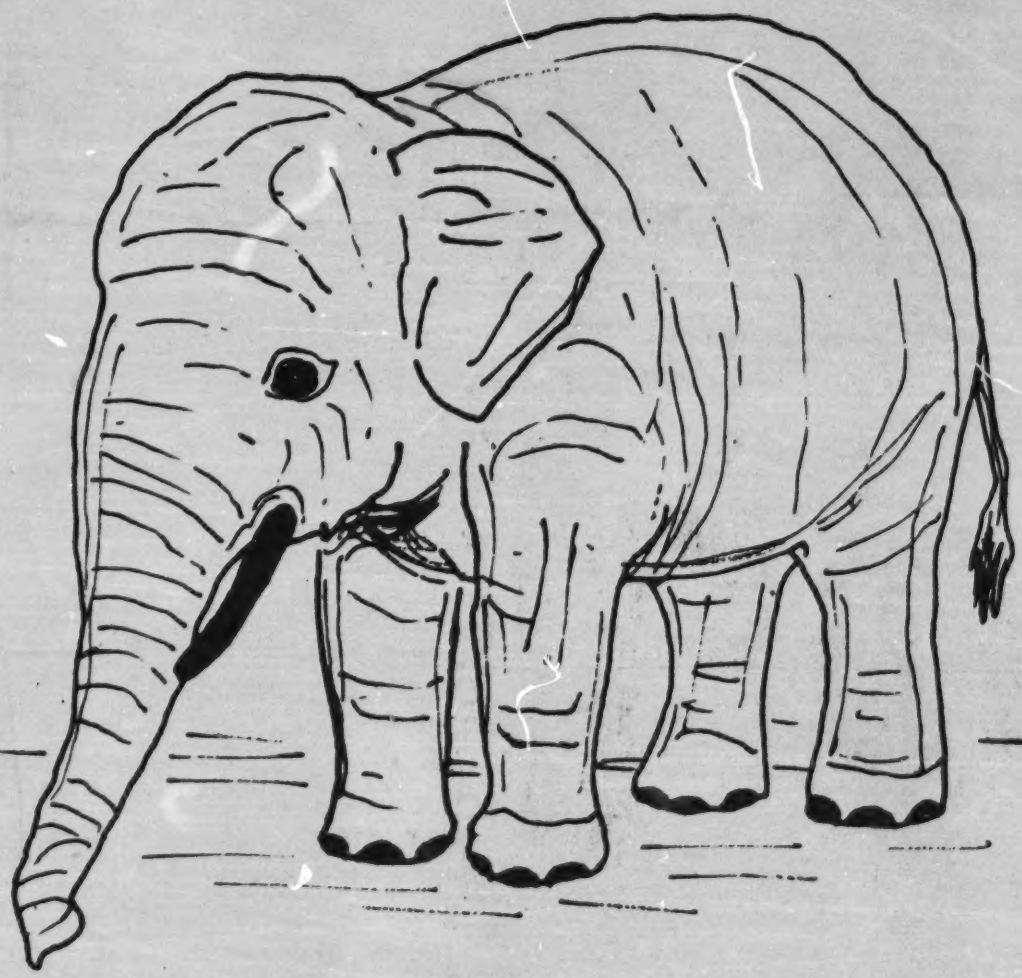
The Third approached the animal
   And, happening to take
The squirming trunk within his hands
   Thus boldly up he spake:
"I see," quoth he, "the Elephant
   Is very like a snake!"

The Fourth reached out an eager hand,
   And felt about the knee:
"What most this wondrous beast is like
   Is very plain," quoth he;
" 'Tis clear enough the Elephant
   Is very like a tree!"

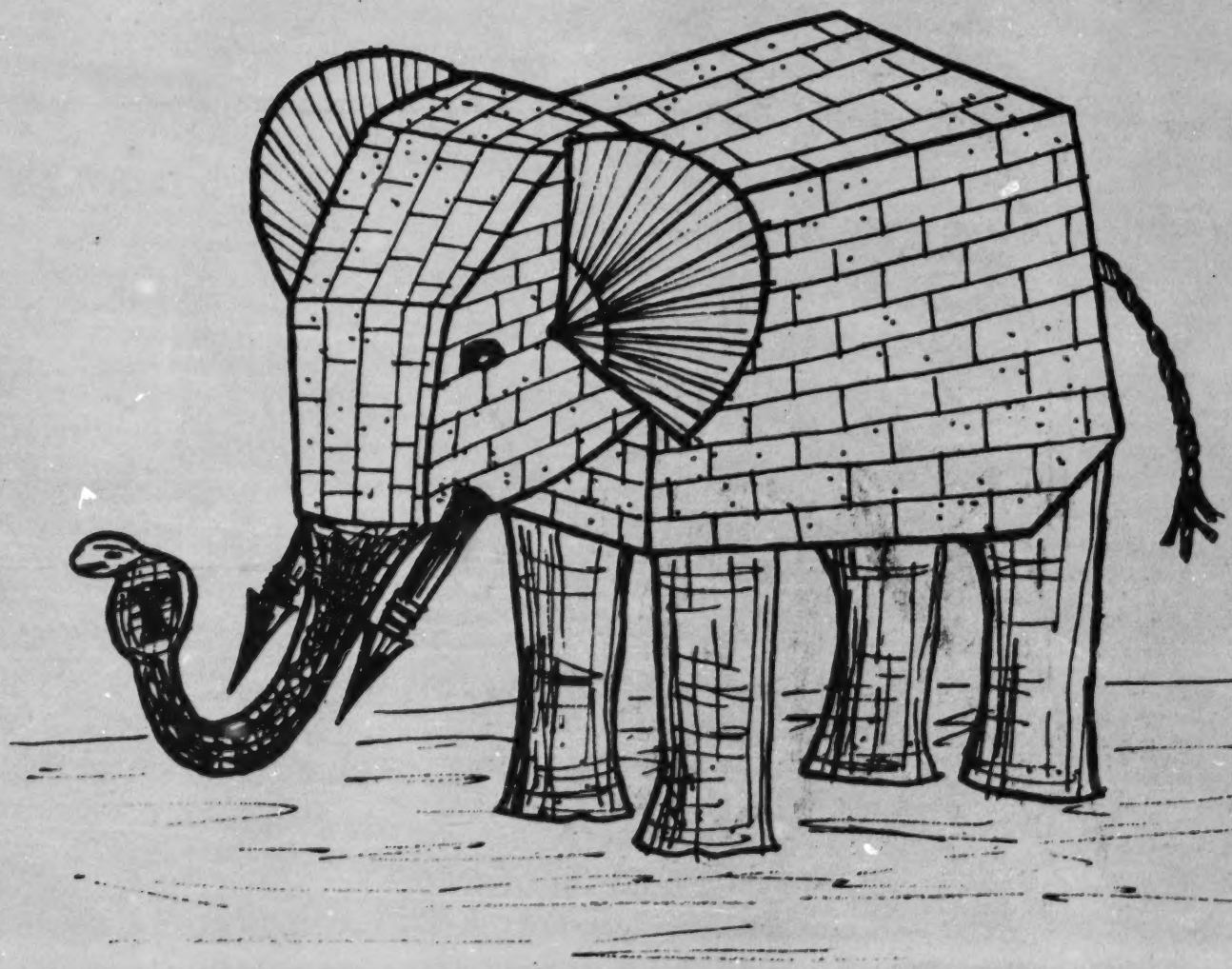
The Fifth, who chanced to touch the ear,
   Said: "E'en the blindest man
Can tell what this resembles most;
   Deny the fact who can
This marvel of an Elephant
   Is very like a fan!"

The Sixth no sooner had begun
   About the beast to grope
Than, seizing on the swinging tail
   That fell within his scope.
"I see," quoth he, "the Elephant
   Is very like a rope!"

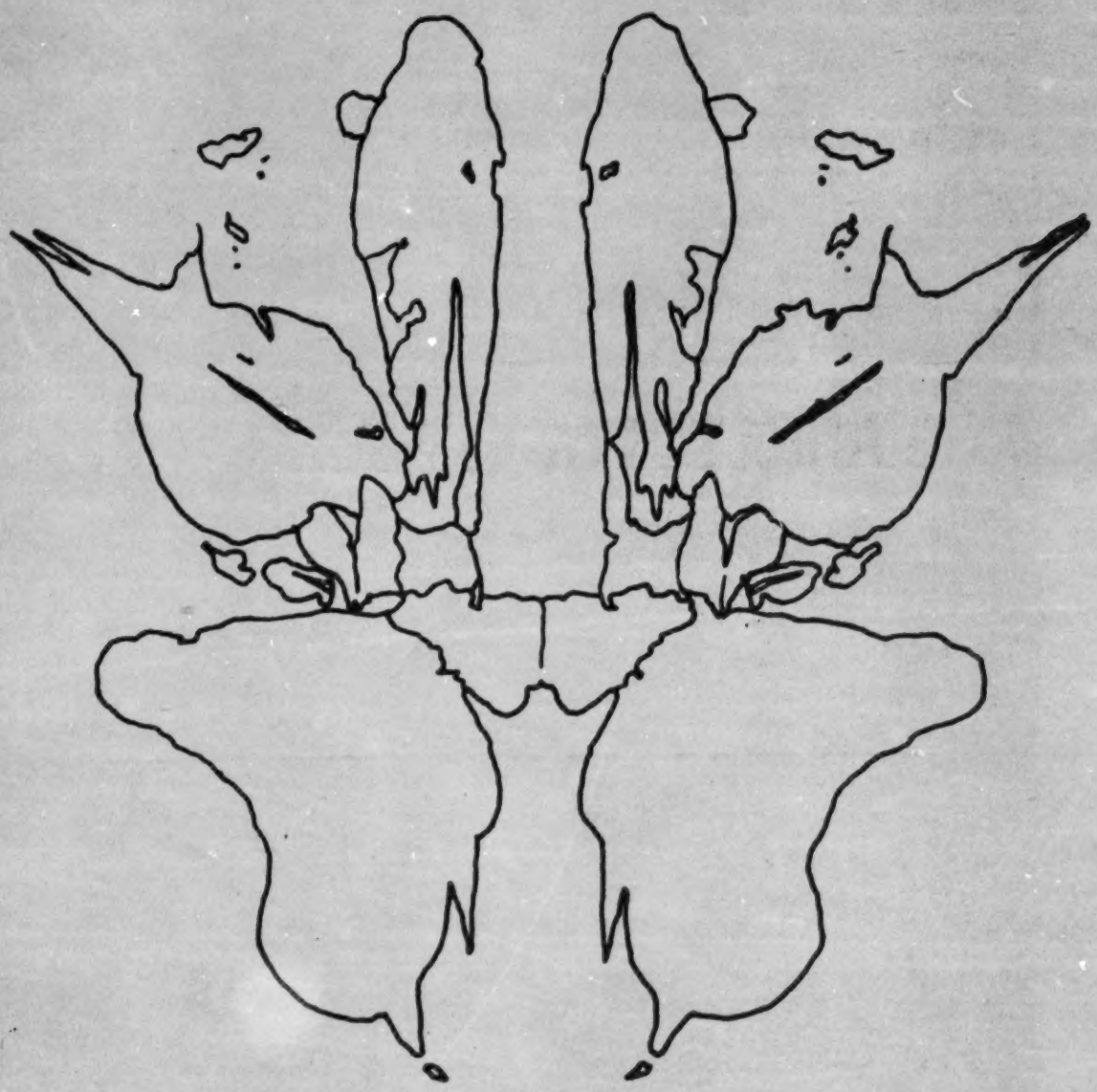
And so these men of Indostan
   Disputed loud and long,
Each in his own opinion
   Exceeding stiff and strong.
Though each was partly in the right,
   They all were in the wrong!



elephant



WHAT DO YOU PERCEIVE ?



HANDOUT SHEET

MEDIA CRITERIA SHEET

This should be duplicated and handed to the students.

1. What size of audience were these media designed for?
   Large_____Medium_____Small_____

2. What size of room and facilities are needed to be considered in the selection of these media? Large_____Medium_____Small_____

3. Is motion necessary in these media to cover the subject? Yes_____
   No_____Why or why not?_____

4. Was color essential in these presentations? Yes_____No_____
   Why or why not?_____

5. How much audience participation is there in these presentation materials?

6. How much room lighting was needed during the showing of the media?

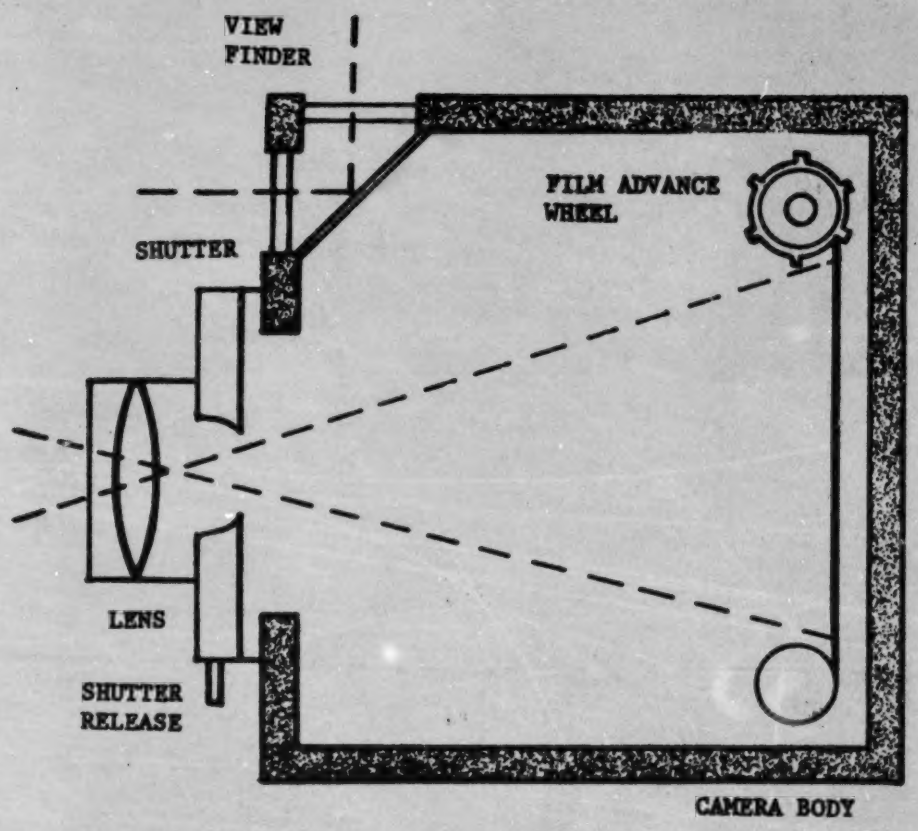
7. What was the source of sound for these media?

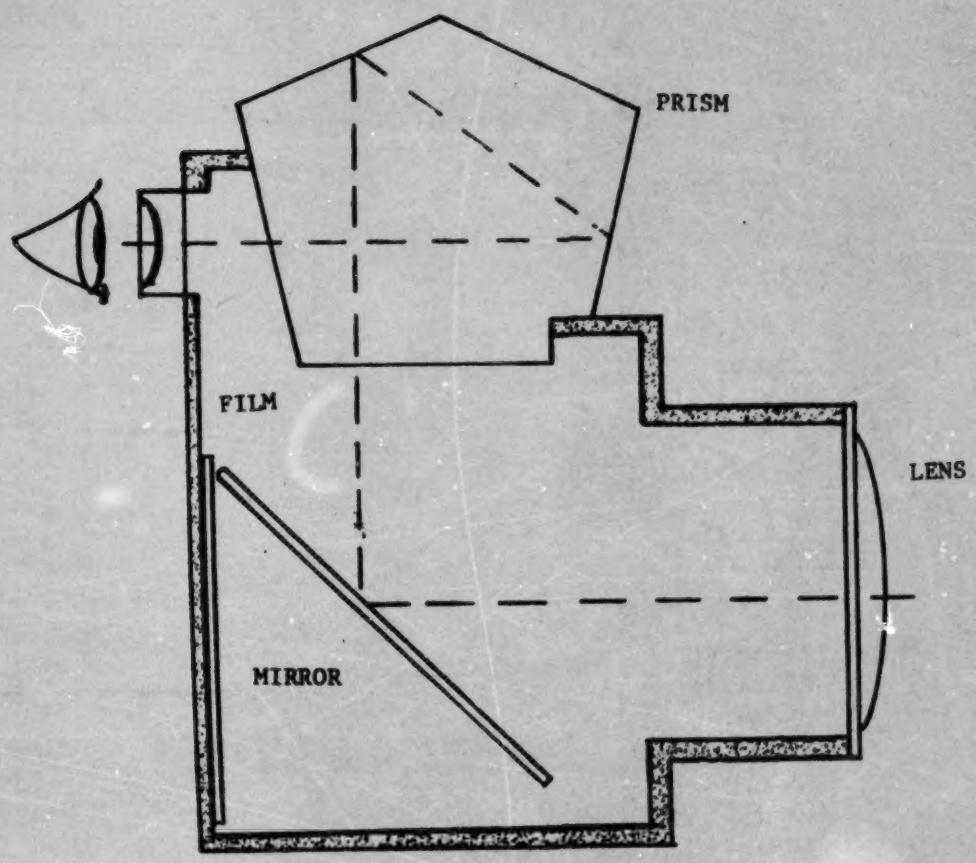
8. Do these media provide for individual study?

9. Are these media easy to store for reuse?

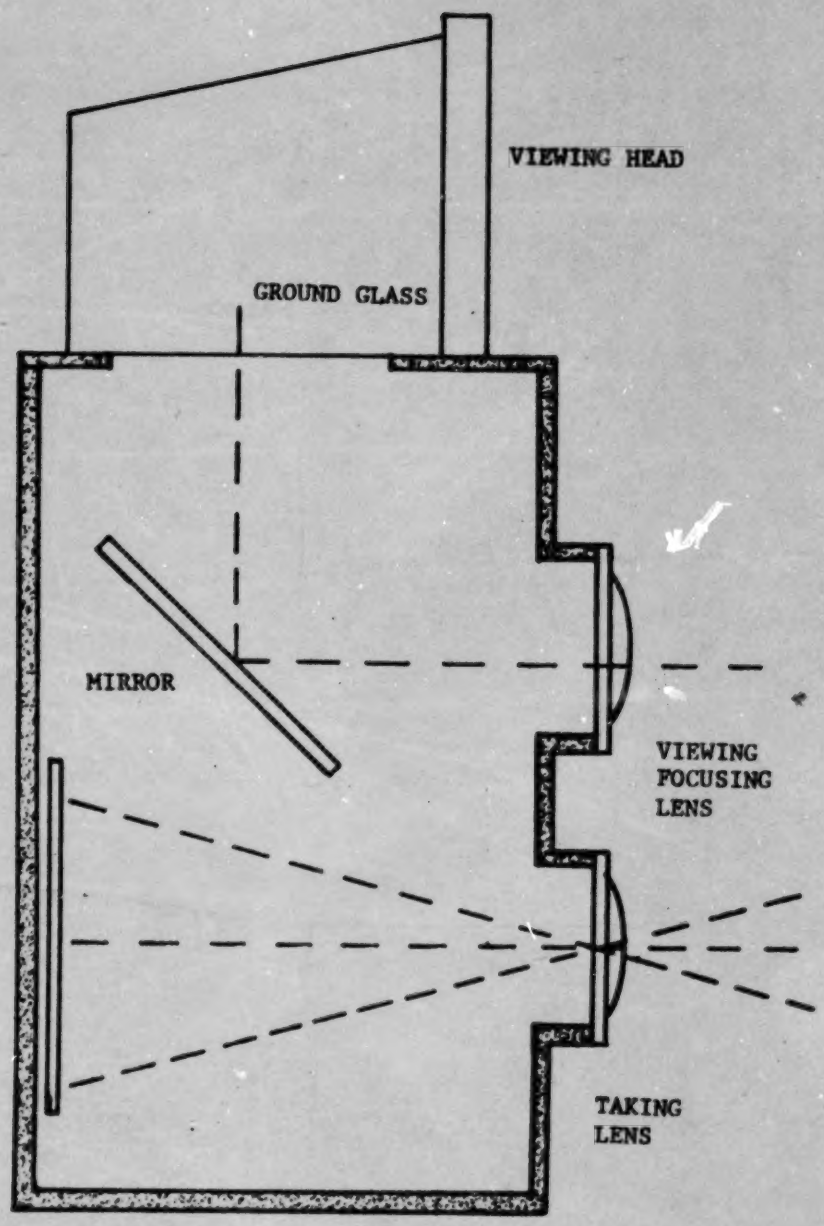
10. What kinds of skill do you think is required for preparation of the materials seen in the presentation?

DISCUSSION: The teacher will now lead the class in a discussion of their answers on the criteria sheet.


VIEW
FINDER
FILM ADVANCE
WHEEL
SHUTTER
LENS
SHUTTER
RELEASE
CAMERA BODY



SINGLE LENS


VIEWING HEAD
GROUND GLASS
MIRROR
VIEWING
FOCUSING
LENS
TAKING
LENS

TWIN LENS

CAMERA IDENTIFICATION SHEET

NAME OF CAMERA _____

1. What type camera is this? (press, reflex, etc.) _____

   Size of picture? _____

2. What size film does it use? _____ Roll? _____ Sheet? _____

   Magazines? _____

3. Lens data: Focal length _____

   Fastest shutter speed _____

   Slowest _____

   Lens speed (largest aperture) _____

   Smallest f stop _____

   What provision for time exposures? _____

   Self-timer? _____

4. How is camera focused? Range Finder? _____ Ground glass? _____

   Other? _____

5. How many range finders does camera have? ____ Name them _____

6. Is there any device which prevents making double exposures? _____

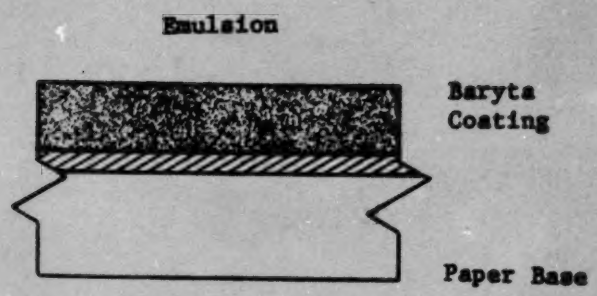
   Is there a provision for making intentional double exposures? _____

7. Are there any special precautions which must be exercised when using this piece of equipment? _____

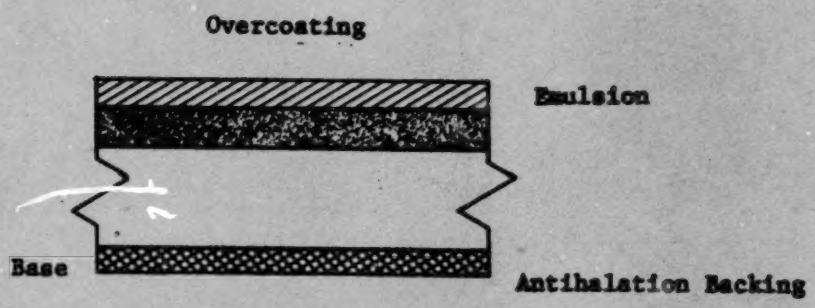
8. For what kind of photography is this camera particularly suited?

   _____

9. What are its chief limitations? _____



CROSS SECTION OF PHOTOGRAPHIC
PRINTING PAPER



CROSS SECTION OF A TYPICAL
BLACK AND WHITE FILM

LIGHT AND PIGMENT EXPERIMENT

Using the three light sources with color filters, shine all on the same spot on a wall or screen.

What color results?_____

Remove the red light.

What color do you see?_____

Replace the red light and remove the green light.

What color results?_____

Replace the green light and remove the blue light.

What is the color now?_____

Pour a little of each of the three food colors in the containers provided; add enough water to fill each container one-third full.

Pour the same amounts of red and blue solutions into a fourth container.

What color results?_____

Pour red and yellow solutions into a fifth container.

What color results?_____

Pour yellow and blue solutions into a sixth container.

Now, what do you see?_____

Pour all three solutions together.

What color do you see?_____

Discussion: Why are the primary colors of light and pigments different?
What does this difference imply about the types of emulsion necessary for color film?
Why is light additive and pigment subtractive?

2. Write out at least 50 possible ideas for pictures, keeping in mind how they can go together to tell the story.

3. Taking the picture
   a. Select the correct black and white film.
   b. Review the handout sheet on composition.
   c. Secure a camera. See instructions for operation of camera.
   d. Load camera with film. (Load only in subdued light.)
   e. Choose subject to be photographed. Refer to list you have made.
   f. Set shutter speed.
   g. Adjust f-stop to gain correct exposure.
   h. Focus the camera.
   i. Compose subject in view finder.
   j. Squeeze shutter release slowly, holding the camera steady.
   k. Advance film.
   l. Repeat procedure for other pictures.

4. Things to look for in a picture when shooting:
   a. One subject with emphasis
   b. Informal design or placement
   c. Background
   d. Fresh approach - creativity
   e. Unusual angle
   f. Back lighting
   g. Shadows
   h. Detail

5. Developing film
   a. Custom - after film has been exposed, take film to a photo shop for developing. 5" x 7"
   b. Self - refer to handout sheet on developing black and white film
   c. Contact prints - refer to handout sheet on contact prints

6. Enlarging black and white film
   a. Refer to handout sheet for enlarging prints.
   b. All prints must be enlarged to 5" x 7"

7. Mounting the black and white prints
   a. Mount all 5" x 7" prints on an 8" x 10" piece of heavy, white paper or cardboard covered with white paper.
   b. Glue the print on the cardboard and number the backs of the mounts; upper right hand corner to correspond with the narrated tape.

8. Writing the narration
   a. Select the prints you want to use.
   b. Arrange prints in order for presentation.

BLACK AND WHITE PHOTOGRAPHIC ESSAY

A. Objectives

1. Students will select an idea or message to be communicated by the media of black and white prints.

2. Students will compose a series of black and white prints to tell a story.

3. Students will learn procedures of developing and enlarging black and white prints.

4. The students will write captions to accompany the black and white prints.

5. The students will mount and display the essay.

B. Materials and Supplies

1. Various cameras
2. Black and white film
3. Developing tank
4. Changing sack
5. Enlarging paper
6. Enlarger
7. Chemicals
8. Print dryers
9. Handout sheet on developing black and white film
10. Handout sheet on enlargements
11. Handout sheet on composition

C. Procedure

1. Selection of idea for communication
   a. Mystery sequence
   b. Magic sequence
   c. Informative sequence
   d. Comical sequence

   EXAMPLES:

   1) An average day
   2) School activity
   3) Ideal date
   4) Pollution
   5) Community project
   6) Individual project
   7) Sports
   8) People
   9) Playing
   10) Children
   11) Field trip
   12) Exhibits
   13) Illustration of something you have read
   14) Symbols
   15) Cartoons
   16) Progress
   17) Dreams
   18) Animals
   19) Shopping trip
   20) Moods

c. Write at least 2 to 4 captions for each print.
d. Write relating captions to connect the prints in story form.
e. Rewrite the captions to correct all errors, making sure that all fits together.
f. Correspond captions and prints.
g. Compose captions on typewriter or headliner.

9. Display
   a. Secure mounting stock large enough to contain all of the photographs.
   b. Attach prints and captions to the mounting stock.
   c. Be sure the correct sequence is followed and that the total effect of the display is the one desired.

COLOR SLIDE SERIES

A. Objectives

1. Students will select an idea or message to be communicated by the media of color slides.
2. Students will compose a series of color slides to tell a story.
3. Students will learn procedures of developing and mounting.
4. The students will write a narration to accompany the slide presentation.
5. The student will record the narration by using a tape recorder.

B. Materials and Supplies

1. 35 mm camera
2. Film
3. Developing tank
4. Changing sack
5. Processing kit for color slides
6. Slide mounts
7. Slide projector
8. Tape for the recorder
9. Tape recorder
10. Handout sheet for design and composition
11. Handout sheet on developing film (in developing kit)
12. Handout sheet for mounting slides
13. Iron

C. Procedure

1. Selection of idea for communication
   a. Mystery sequence
   b. Magic sequence
   c. Informative sequence
   d. Comical sequence

   EXAMPLES:

   1) An average day
   2) School activity
   3) Ideal date
   4) Pollution
   5) Community project
   6) Individual project
   7) Sports
   8) People
   9) Playing
   10) Children
   11) Field trip
   12) Exhibits
   13) Illustration of something you've read
   14) Symbols
   15) Cartoon
   16) Progress
   17) Dreams
   18) Animals
   19) Shopping trip
   20) Moods

2. Write at least 100 possible ideas for pictures, keeping in mind how they can go together to tell the story. (Keep this list. It will be handed in with the finished project.)

3. Shoot the pictures
   a. Select the correct film for the slide. (See instructions)
   b. Before taking any pictures, review the hardest sheet or composition.
   c. Review the list you have made and take all pictures which will help tell your story.
   d. Secure a camera and load film according to instructions. If in doubt, check with instructor.
   e. Remember to work "SAFE" to set the camera:
      Step 1: "S" Set the shutter to the correct setting or speed.
      Step 2: "A" Set the correct <u>aperture</u>, or opening of the lens.
      Step 3: "F" <u>Focus</u> the camera. See handout sheet on composition to get best picture.
      Step 4: "E" <u>Exposure</u>; squeeze shutter release slowly, holding camera steady.
      Step 5: Advance film.
   f. Repeat steps 1-5 for next picture.
   g. Remove film after last picture has been exposed. Keep film inside its light-tight container.

4. Developing film
   a. Custom - after film has been exposed take film to a photo shop for developing.
   b. Self - see instructor for correct practices and chemicals needed for developing.

5. Mounting color slides
   a. Take the roll of film and cut out each picture. Be careful only to cut the area between the pictures; also be careful not to scratch the image.
   b. Take one slide mount and one picture.
   c. Place slide mount down on flat surface.
   d. Place slide in the mount. The film will curl up.
   e. Close slide mount.
   f. Making sure the slide is in the correct position, take the hot iron and iron over the mount. DO NOT iron over the picture or the picture will be destroyed.
   g. Repeat the procedure for all slides.

6. Writing the narration
   a. Select the slides you want to use.
   b. Arrange slides in order presentation.
   c. Write at least 2 to 4 sentences to each slide.

d. After writing 2 to 4 sentences for each slide, write relating sentences to connect the slides in a story form.
e. Rewrite the narration to correct all errors, making sure that it all fits together.
f. Correspond narration and slides.
g. Number slides in upper right hand corner.
h. Read through the narration until you can read it without any mistakes.
i. Make a formal rehearsal, a "dry run" through the sequence.

7. Recording the narration
   a. Secure a tape recorder.
   b. Familiarize yourself with the recorder. If in doubt, check with instructor.
   c. Acquire a noisemaker, preferably a soft, pleasing tone.
      Example: a toggle switch
      This sound will tell the operator of the projector when to change slides.
   d. Record the narration in a soundproof room so that all outside noises will be eliminated.
   e. Record the tape with no mistakes. If you make mistakes, erase the tape and start all over until it is perfect.

8. Evaluation
   a. Did the student communicate his main ideas?
   b. Did the student organize his thoughts?
   c. Did the student use good composition?
   d. Did the student select the correct image carrying device to convey his thoughts?

MOVIES

A. Objectives

1. Students will select an idea or message to be communicated by the media of a movie.

2. Students will compose a film storyboard to facilitate their planning.

3. Students will film a movie which satisfies the storyboard theme.

B. Materials and Supplies

1. Soft leaded pencils
2. Felt tip pens
3. Paint brushes and tempera
4. Carbon paper
5. 8½" x 11" bond paper
6. Topic reading

STORYBOARD

1. 8 mm cartridge movie camera
2. Photo floodlight
3. Chalk board
4. Splicer
5. 8 mm projector

MOVIE

C. Procedure

1. Selection of idea for communication
   a. Mystery sequence; what did you see?
   b. Magic sequence
   c. Informative sequence
   d. Comical sequence

2. Sketch and plan storyboard
   a. Divide 8½" x 11" sheets of paper into six equal parts.
   b. Do your thinking through the eyes of the camera.
   c. Sketch out the first important scene on the top left square; add brief description in square below it.
   d. Continue this process until your message is communicated.
   e. Try to limit your squares to ten.
   f. Use a pencil, pen, or paints. Don't be afraid to trace, erase, repeat, or start over.
   g. Properly made, the storyboard will help you eliminate false starts in the filming.

3. Film the motion picture sequence.
   a. Gather together all the required props and materials for the filming.
   b. Divide job assignments among your group as follows: 1 director, 1 cameraman, 1 propman, and 2 or more actors.
   c. Make a formal rehearsal or "dry run" through the sequence.
   d. Director should decide when actual filming will start.
   e. Secure a camera and load film according to instructions. If in doubt, check with the instructor.
   f. Assemble crew and materials and start filming scenes.
   g. Be sure to stop and start camera at scene ends and starts.
   h. Give instructor the film for processing.
   i. Schedule the projector for film results.
   j. Schedule premiere showing if it is warranted.

OVERHEAD PROJECTUALS

A. Objectives

1. Students will select an idea or message to be communicated by the media of overhead projector transparencies.

2. Each student will make a transparency which communicates his message.

B. Materials

1. Supplies
   a. Tracing vellum 8½" x 11"
   b. Waterproof drawing ink
   c. Transparent tape (without tape dispenser)
   d. Polyester film tape (without tape dispenser)
   e. Projection frames (any brand - use only one size)
   f. Pressure sensitive reproducible pattern
   g. Color adhesive film
   h. Soft lead pencils
   i. Carbon content ink and pen
   j. Bond paper
   k. Polyester tracing film
   l. Diazo transparency stock
   m. Thermal transparency stock
   n. Diazo machine
   o. Thermocopy machine

2. Equipment
   a. Lettering set
   b. Rapidograph pen set - seven (7) pens (recommended point sizes: 1, 2, 2½, 3, and 4; fine points of 0, 00, and 000 are optional)
   c. Compass attachment for pen
   d. Exacto knife, razor blade, or sharp knife
   e. T-square
   f. Triangles - 45°; 30° - 60°
   g. Ink eraser
   h. Erasing shield
   i. Drafting machine (optional)
   j. Circle template

C. Construction Procedure

1. Determine the subject to be covered.

2. Refer to all available drafting texts illustrating the subject.

3. Select the illustration which you consider most appropriate. (combine or revise various text illustrations)

4. Construct a freehand rough layout.

5. Consider spacing, number of overlays needed, and hinging sequence.

6. Construct a mechanical layout.
   a. Draw the complete illustration for the transparency on a single sheet to prevent parts of each overlay from overlapping.
   b. Rough in title backwards and forwards from center of the sheet.
   c. Record registration points.
   d. Determine the text and color of each overlay.

7. Draw transparency originals.
   a. Record legend on each sheet.
      1) Name of transparency
      2) Designer and date
      3) Sheet number
      4) Color
      5) Hinge
      6) Registration points
   b. Trace static from mechanical layout.
      1) Static - sheets fastened to the frame
      2) Center on frame layout
   c. Trace overlays in sequential order.
      1) Offset each successive overlay 3/32" toward the side
      2) <u>Record legend on all sheets</u>.

<u>D. Film Development</u> (see instructor for directions)

1. Heat process (thermofax)

2. Diazo process

3. Electrostatic process

<u>E. Color Lifting</u>

1. If you use a printed picture as your original, secure the color lift kit.

2. Be sure the picture or image is printed on a clay base paper.

3. Cut Con-tact vinyl to correct size.

4. Fill pan with lukewarm water.

5. Apply Con-tact to picture; smooth out bubbles; and roll all of the surface to insure adhesion.

6. Place in warm water; let set until papers peels off easily.

7. Rinse and let dry.

8. Spray back with clear plastic.

9. Allow to dry; preview results.

F. Assemble Transparency

1. Attach static with front side down to back of frame with magic transparent tape. (fasten opposite sides first - then opposite corners)

2. Turn frame right side up and temporarily attach all overlays in position with masking tape by aligning registration points.

3. Fasten first overlay with hinge along one side first.

4. Remove masking tape.

5. Check to see that all overlays fall in position.

G. Label Transparency on the Frame (sections - S-2)

H. Record Transparency Number and Description on Record Sheet

I. Transparency Projection Equipment

1. Grease pencil

2. Cleaning cloth (old towel)

3. Clear acetate on frame

4. T-square

5. Triangles

6. Colored ink pens

7. Water supply to clean colored marking pen off transparency.

J. Proper Use of Overhead Projector

1. Have all aids in easy reach and transparencies in the order of presentation.

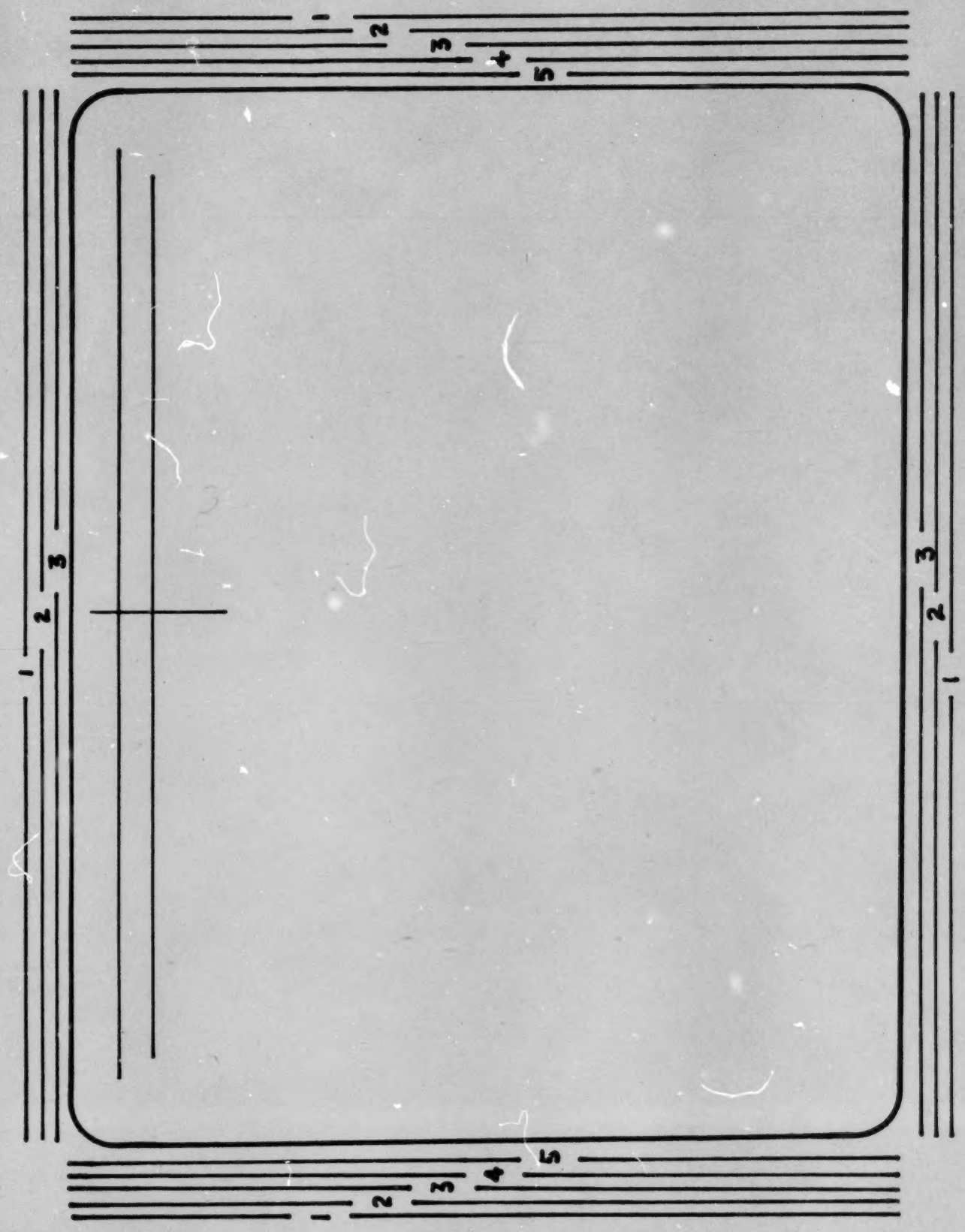
2. Adjust the position of the frame and the focus of the illustration before beginning presentation.

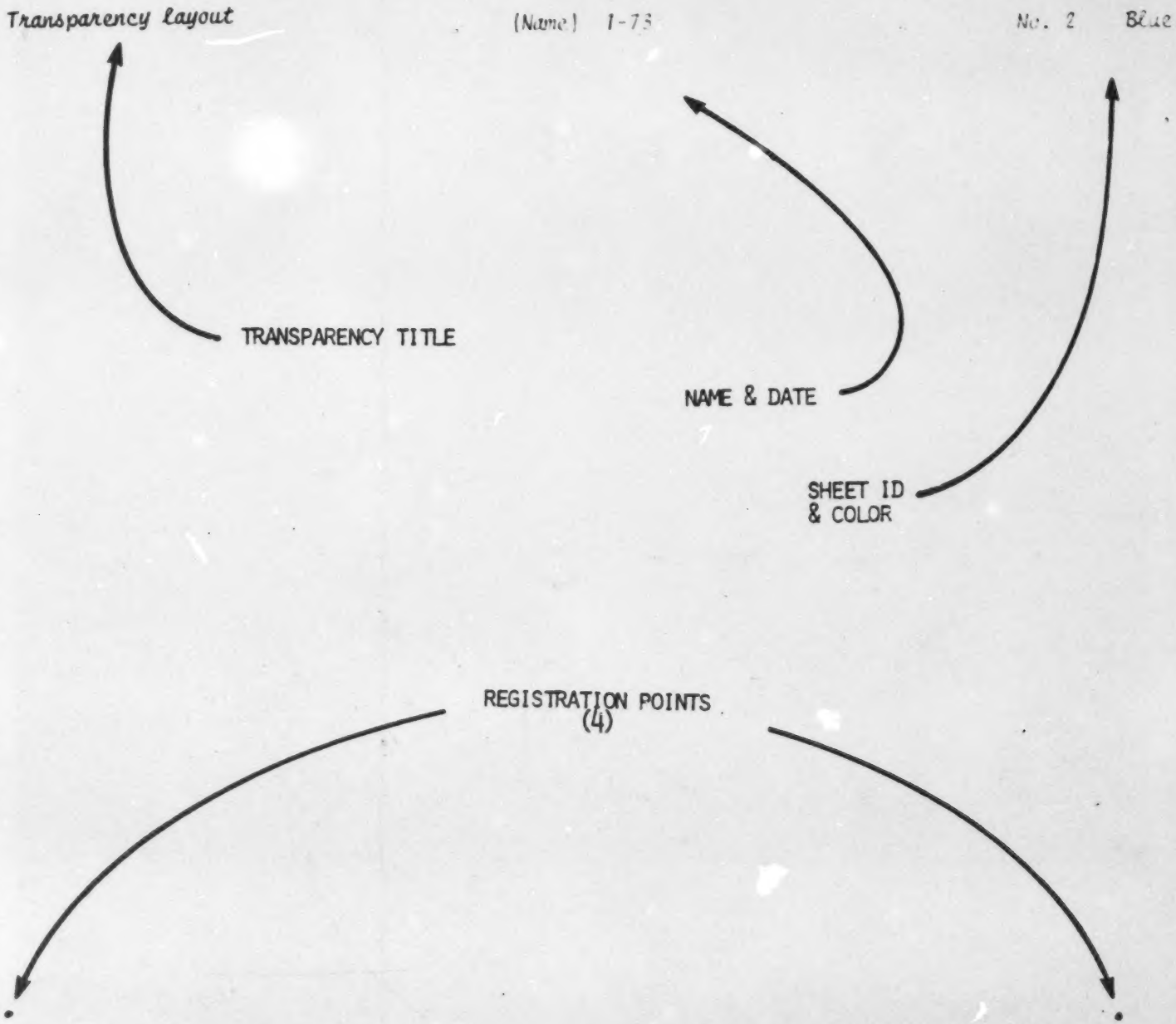
3. Turn projector on only when the students' attention is to be directed to the screen.

4. Do not watch screen while lecturing.

5. Turn off projector if your discussion does not refer to the image on the screen.

6. Conceal text areas not yet discussed.

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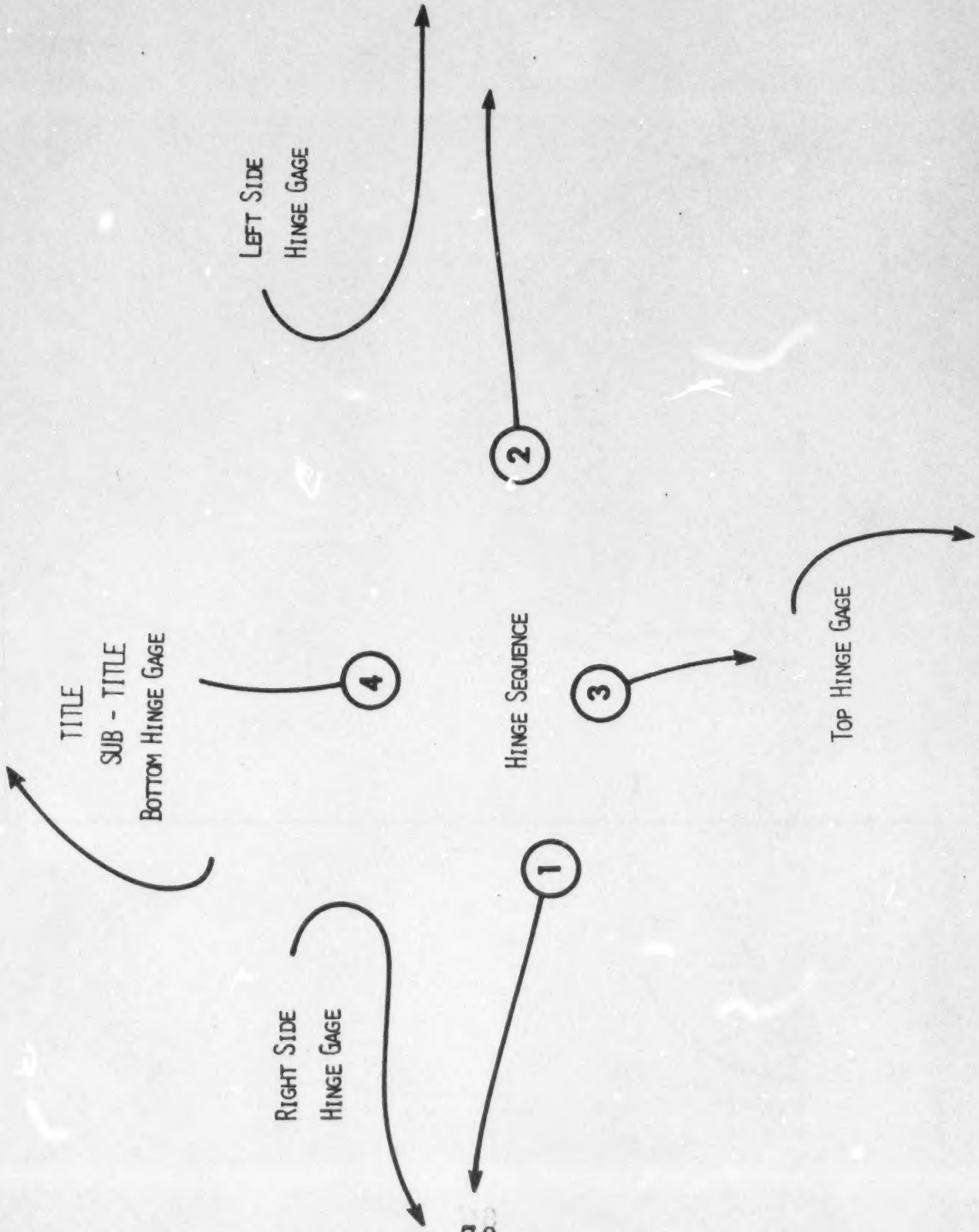
No. 2 Blue
TRANSPARENCY TITLE
NAME & DATE
SHEET ID
& COLOR
REGISTRATION POINTS
(4)


TITLE
SUB - TITLE
BOTTOM HINGE GAGE
4
RIGHT SIDE
HINGE GAGE
1
HINGE SEQUENCE
LEFT SIDE
HINGE GAGE
2
3
TOP HINGE GAGE

TELEVISION PRODUCTION

A. Objectives

1. Students will select a message to be communicated by the media of videotape.

2. Students will organize and produce a television production to communicate their message.

B. Objectives

1. 2 video cameras
2. 2 monitors
3. 2 truck-type tripods
4. 1 special effects generator
5. 1 video recorder and tapes
6. 1 program monitor
7. Appropriate connectors and leads
8. Software materials for:
   - Artwork
   - Script (example format)
   - Props
9. Equipment operation manuals

C. Procedure

1. Select an idea or message for communication. Television is a one-to-one communication; remember to key your communication to individuals.
   EXAMPLES:
   1) Newscast
   2) Advertisement
   3) Commentary
   4) Demonstrations of procedure

   Selection of basic communication should be group effort and decision.

2. Establish the following basic production responsibilities.
   a) Script
      Copy writer - prepares rough script and storyboard
      Art director - prepares storyboard
      Account executive - expresses clients viewpoint

   b) Taping
      Producer - coordinates all production activities
      Electrician - controls and arranges lighting
      Grid - arranges equipment
      Sound man - handles and arranges miscellaneous
      Director - controls and directs filming
      Assistant director - aids the director
      Propman - supplies props
      Make-up - prepares talents

Cameraman - controls camera shots
Assistant cameraman - operates camera
Script checker - cues actors
Technicians - operates special effects

3. Prepare storyboard.

4. Write script.

5. Get client's final approval for production.

6. Use sample script for learning job responsibilities and the sequence of taping.

7. Make all necessary connections and hook-ups. Have your teacher check it.

8. Arrange cameras and lighting.

9. Thread tape in video recorder.

10. Director should assemble production crew and talents.

11. Make a "dry run" rehearsal and read through the script.

12. Make a taped run.

13. Start the countdown: 10 - 0.

14. Start the recorder; action.

15. Produce the script in its entirety.

16. Replay script to note errors.

17. When the director decides the crew is ready, repeat the process with a group produced script. (steps 7 - 16)

PINHOLE CAMERA
(optional)

Outline

I. Types of pinhole cameras

II. Building the camera (refer to handout sheet on pinhole camera)

III. Developing film

A. Chemicals
1. Developer (D-76 or equivalent)
2. Stop bath
3. Fix bath

B. Refer to handout sheet on developing film.

IV. Contact printer

A. Contact printer

B. Chemicals
1. Developer (Dektol or equivalent)
2. Stop bath
3. Fix bath

C. Dryer

V. Group activity

A. After group has finished, the class will compare pinhole camera to today's camera to see how they could improve the pinhole camera.
1. Shutter
a. One set speed
1) Leaf or flap shutter found on inexpensive box cameras
b. Focal plane a curtain shutter
1) Range from 12 seconds to 1/1000 of a second
c. Iris is between the lens shutters
1) One full second to 1/1000 of a second
2. Aperture controls
a. Pinhole camera uses an opening smaller than the F-22
b. Waterhouse stop
1) Piece of metal with holes of various sizes

c. Iris openings (adjusted to different sizes)
d. Automatic iris

3. Lens: a device used for focusing light reflected from an object to form an image on the film plate
   a. Types
      1) Normal
      2) Wide-angle
      3) Telephoto
      4) Close-up
      5) Zoom

VI. Instructional aids

A. Pre-made pinhole camera

B. Different types of cameras

C. How to make a contact print (see Appendix B for source)

D. Developing roll film (see Appendix B for source)

E. How to develop a negative (see Appendix B for source)

F. Handout sheet on building a pinhole camera

G. Handout sheet on developing roll film

H. Handout sheet on making contact prints

VII. Demonstration

A. The teacher will demonstrate the various techniques in developing film and making contact prints.

B. The teacher will present an open discussion on how to improve the pinhole camera, and how others work. (After each group has finished making the camera, developing the film, and making contact prints.)

C. Each group will be given a handout sheet on how to build a pinhole camera. They will follow the handout, making a camera.

D. The group will expose one roll of film.

E. The group will then follow the handout sheet on how to develop a roll of film, developing their own film.

F. The group will then follow the handout sheet on how to make contact prints of each negative.

VIII. Materials and Supplies

A. Handout sheet on building a pinhole camera

B. Handout sheet on developing a roll of film

C. Handout sheet on making contact prints

D. Material listed on handout sheet (pinhole)

E. Changing bag

F. Contact printer

G. Three developing trays

H. Print dryer

I. Developing tank

J. Chemicals

K. Black and white film

IX. Evaluation

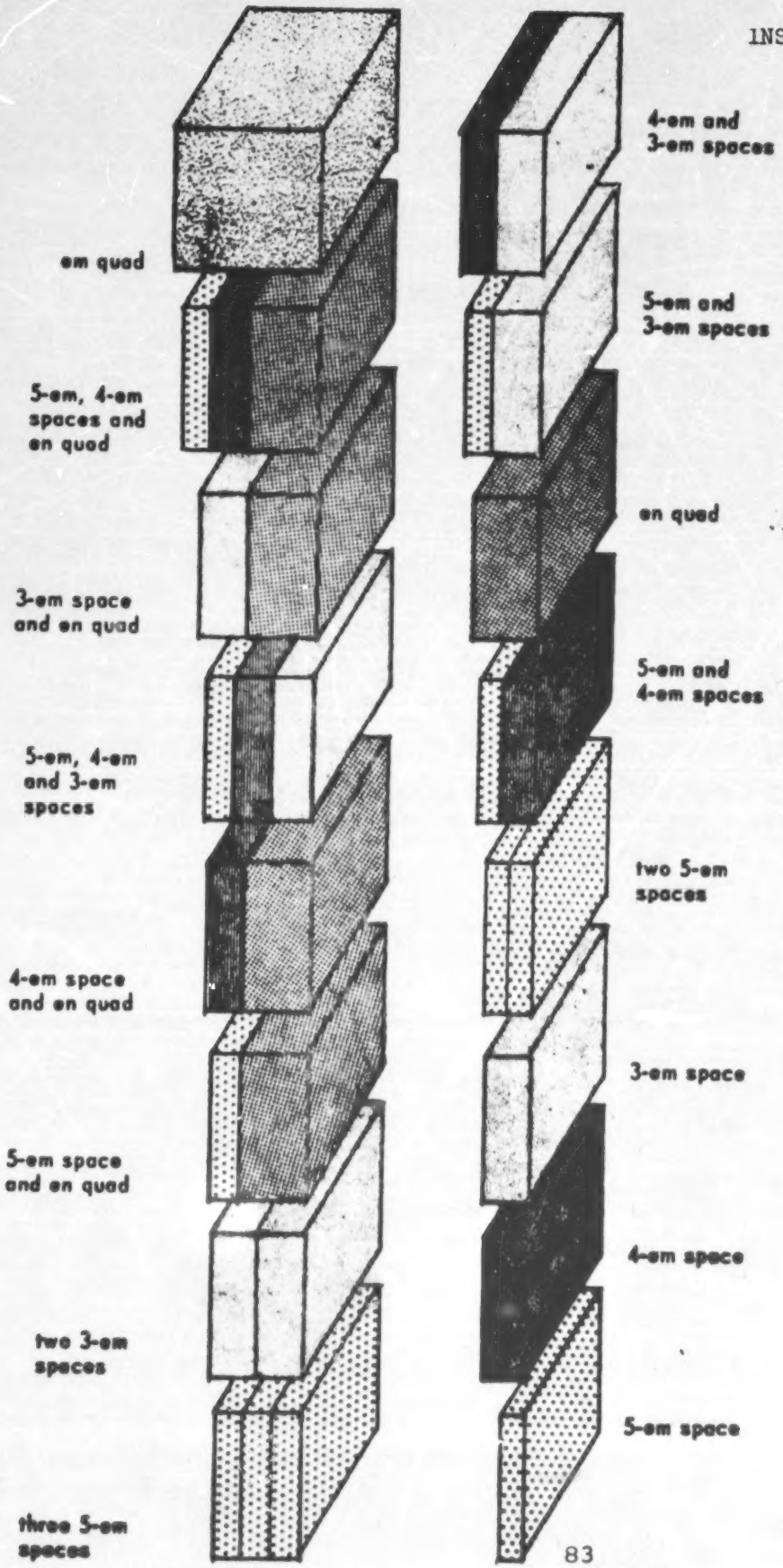
A. Did the students take pride in building the camera?

B. Did the students use good composition?

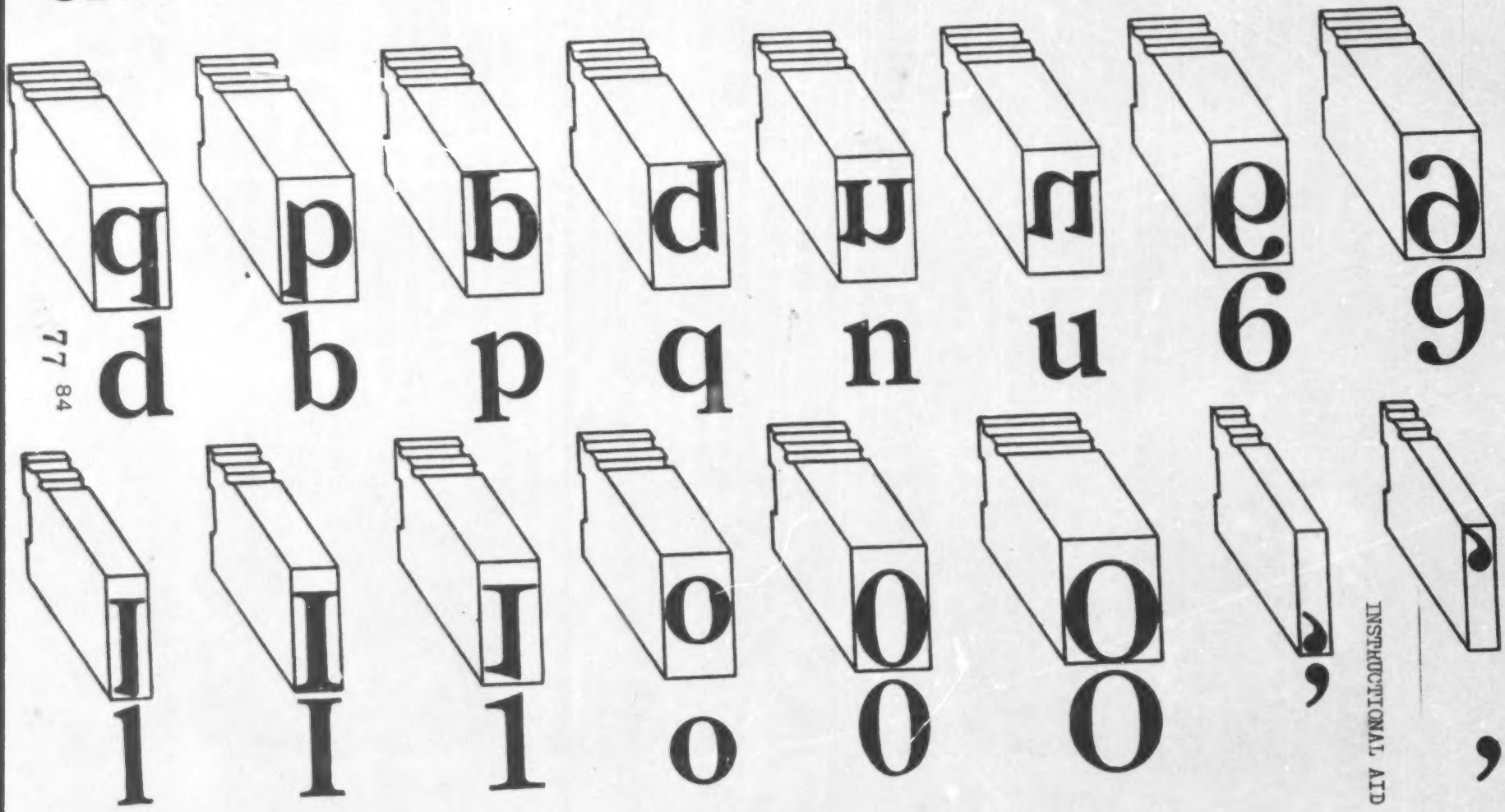
C. Were the contact prints well made?

D. Did the students add to the group discussion?

How to Combine Spaces and Quads for Proper Line Justification



CHARACTERS DIFFICULT TO DISTINGUISH



77 84

INSTRUCTIONAL AID XI-B

THE LETTERPRESS

PERSONALIZED STATIONERY

Student Learning Objectives

Learn the principles of letterpress printing including:

a. Hand setting type and locking it up
b. Taking a proof
c. Cleaning type
d. Making corrections
e. Preparing, operating, and feeding the letterpress
f. Cutting paper to specified sizes
g. Designing and cutting a box on the press
h. Marbleizing the cover of a box

Each student will design some personalized stationery which will communicate to others a personal thought, expression, or self-concept to the receiver. The stationery may be monogrammed or have the student's complete name and address. (If the student so desires, neither) It will be a requirement, however, that the student communicate some thought or expression on the stationery. (refer to IV, Graphic design)

Administration Procedure

Four-tenths of the students will work on the letterpress area at one time. These students will be divided into groups of five students. The total unit of Printed Graphic Communication will receive a time allotment of eight (8) weeks. The first eleven (11) days will be spent on historical backgrounds, discussions of the advantages and disadvantages of each printed method, demonstrations of the equipment, safety rules which must be followed and career implications. The last six (6) weeks will be be broken down into two segments of three and one-half weeks each. Students will then be given a chance to work in two of the following three areas:

a. Letterpress
b. Silk-screen
c. Offset and gravure

The stationery would be cut from 17 x 22 size paper to 7" x 10" sheets and use #24 Monarch envelopes. Each student will make 24 sheets of stationery and 24 printed envelopes. As a group of five students, they will go through the design process of the stationery box. The jigs will be pre-made and provided by the instructor. Each student will marbleize the top of his own box and print the envelope heading in the center of the box. The cost of this project will be 35¢.

General Teacher Outline

I. Assembling the image carrier

A. Design the stationery, envelopes and box

B. Decide on a style of type

C. Compose the type

D. Make a proof and correct errors

E. Lock up the type in a press chase

F. Cut paper to size

G. Clean type

II. Transferring the image carrier

A. Prepare the press

B. Marbleize top of box

C. Run off the stationery and envelopes

III. Packaging

A. Cut out box by use of press and jig

B. Glue box together

Materials needed per student

1. Six sheets of 17" x 22" paper
2. 24 #24 Monarch envelopes
3. Card showing California Job Case
4. String
5. One sheet of 17" x 22" poster board
6. Materials for platen press
7. Colored inks for marbleizing

Equipment needed per student

1. Type case
2. Composing stick
3. Glue
4. Marbleizing equipment
5. Chase, wooden furniture, quoints, and quions keys
6. Platen press

HANDOUT SHEET FOR PERSONALIZED STATIONERY ACTIVITY

NOTE TO THE STUDENTS: Do each of the following items in the sequential order given and then check to the left of the number when complete.

____1. Receive from your instructor three sheets of 7" x 10" paper and one sheet of paper the same size as the envelopes.

____2. Carefully design the communication you want to relay to the receiver on your stationery. This could be a personal thought, expression, or self-concept. Along with this communication may be your monogram or your name and address. Develop three designs on the three sheets your instructor gave you and your return address on the envelope size paper. This information should be printed neatly in the appropriate area of the sheet you desire. Have your instructor put his OK on the one design you and he agree on as your best effort.

____3. From the display board that your instructor has shown you, decide on the style or styles of type you would like to use. The style should reflect the thought you are trying to convey.

____4. With a composing stick, type case, and a card showing the California Job Case, set a line of type by inserting a slug into the composing stick. Make sure all the nicks on the type are towards the open end of the composing stick. Always place a slug in the stick after setting the last line of type and a lead between each row.

____5. Secure the type together by tying string around the type and knotting it. Place type in the corner of the galley with the open end of the galley towards the cylinder of the proof press. Ink the type with a roller. Place a sheet of paper on top of the type and pull the cylinder over the type.

____6. Read the proof carefully, checking with a pencil any errors.

____7. Correct errors by using a makeup rule to change type.

____8. If necessary and desirable, center the type by increasing or decreasing the spaces placed at the beginning or end of each line. Check by making another proof.

____9. Lock up the type in a press chase as your instructor has shown.

____10. Prepare the press as shown by your instructor during the first two weeks of demonstration.

____11. Receive from your instructor six sheets of 17" x 22" paper. By using the math equation discussed by your instructor, determine how many sheets of 7" x 10" sheets can be cut from the larger 17" x 22" sheets. Set up the paper cutter with your group to cut paper to size. Have your instructor OK the set-up before the power is turned on. Cut your paper to size.

____12. Before the power is turned on to the press, make sure that your instructor has OK'd your set-up and that he will watch you operate the press. (Use wastepaper for the first few trial runs.)

____13. Run the cut paper through the press completing the paper part of your stationery.

____14. When the run is completed, clean type as shown by your instructor and return type and other equipment to the proper storing place unless part of the type can be used for the return address on the envelope. It is important that type be returned to the proper type case and be put in the correct compartments of the case.

____15. Your instructor has constructed a jig that can be placed in the press. It will cut and score the heavy paper you will use for the box that will hold your stationery in place. (For you to design and make this jig would take too much of your time.) Get a sheet of heavy paper from your instructor and each in your group cut your box out by using the jig in the press. Do it by hand, with the power off. Since the top and bottom of the box are identical, select one for the top.

____16. To marbleize the top of the box, go to the area which is set up for this process. On top of about an inch of clean water, drop several drops of colored ink. The colors and amount of each to be determined by you. Draw a nail comb over the surface to form the pattern desired. The lid top is then placed top side down on top of the water. Remove and let dry. Iron out wrinkles with a hand iron. (Make sure an extra sheet of paper is between the iron and the box lid.)

____17. For a return address on the envelopes, start with step 4 and put a check in the second space to the left of the number. Continue through step 13, substituting the envelopes for the paper. Secure 24 envelopes from your instructor.

____18. Center the box lid in the press so that the return address will be printed in the upper centered portion of the box lid. Get the instructor's OK. Print by hand power only.

____19. Put box together with glue, put envelopes on bottom with paper on top and turn in for a grade.

THE LETTERPRESS

RUBBER STAMP

Student Learning Objectives

Learn the principle by which some newspapers are printed and prepare, operate, and clean up a rubber stamp machine. Make a mold from type, make a rubber impression and attach it to a mount.

Each student will make a rubber stamp which will print his return address. The type to be used will already be set up from the previous student activity for the letterpress where the return address was printed on the envelopes of the stationery.

Administration Procedure

Refer to the administration procedure for the personalized stationery. All five students in each group will work at this project together. If, during this activity, the students are in doubt as to what they are doing, they should review. The cost of this project is 50¢ per student.

General Teacher Outline

I. Assembling the image carrier

   A. Lock up the type in a rubber stamp chase

   B. Make a proof and correct errors

II. Transferring the image carrier

   A. Operation of the rubber stamp press

   B. Make matrix

   C. Vulcanize the rubber gum

   D. Assemble rubber gum on molding strip

Materials

1. Plaster molding material (1" x 2")
2. Stamp gum (1" x 2")
3. Molding (assorted sizes)
4. Sandpaper
5. Rubber cement

Equipment

1. Type case
2. Rubber stamp machine and accessories

NOTE: Other student activities that could be used with the letterpress could be any of the following. The general procedure would be as much the same as the detailed student handout sheets designed for the stated activities.

1. Personal cards
2. Business cards
3. Grocery shopping lists
4. Recipe cards
5. Date books
6. Calendars

HANDOUT SHEET FOR THE RUBBER STAMP ACTIVITY

NOTE TO THE STUDENTS: Do each of the following items in the sequential order given and then check to the left of the number when complete.

____1. Place the type used for your return address on the stationery box in a special chase used for making rubber stamps. The limit stops on the chase should be up. Metal furniture should be used for lock up because the heat generated in the stamp press will dry out and shrink the wood furniture.

____2. Preheat the type form for two minutes by sliding the chase into the press which has been heated to 300°F.

____3. Remove the chase and place a piece of plastic molding material with the red side against the type. Cover the back of the bakelite with paper to prevent it from sticking to the heated platen.

____4. Insert the type form with the plastic mold and paper into the press. Raise the bed by turning the hand wheel clockwise until the plastic touches the heated platen.

____5. After plastic has been in contact with the heated platen for one minute, raise the bed until the limit stops touch the frame of the rubber stamp machine.

____6. Allow to bake for ten minutes, remove from the press and pry the plastic from the type.

____7. Cut a piece of stamp gum about 1/8" larger than the type area. Dust both the gum and plastic with soap stone. (Remove all excess powder from the mold cavities.

____8. Place the plastic mold side upward on the vulcanizing tray with the gum face down directly over the cavity in the plastic.

____9. Cover the gum with a piece of paper and slide the vulcanizing tray into the stamp press.

____10. Raise the bed to the limit bars for six minutes and then remove from the press.

____11. After cooling has taken place, strip the gum from the plastic. (The stamp is properly vulcanized if no permanent mark is left when the thumbnail is pressed into the type face.)

____12. Trim the stamp as close to the raised letters as possible.

____13. Select a molding that is wide enough to accomodate the stamp and cut it to length. Sand the ends smooth.

____14. Attach the stamp to the sponge rubber of the mounting strip with rubber cement.

____15. Discard the type used for this project in a can provided by your instructor. The heat used in this activity ruins the type so it cannot be used again.

OFFSET PRINTING

MEMO PAD

Student Learning Objectives

Learn the principles of offset printing including:

a. Producing an image carrier
b. Transferring of the image
c. Operating the offset press safely
d. Designing the communicative material
e. Working as an effective team member in producing communication materials
f. Padding, binding, and trimming communication materials for distribution

Each student will make a design layout for a memo pad which should communicate to the receiver at least three things about himself:

1. The sender's picture
2. The sender's name
3. The sender's motto or slogan

The student should refer to the information taught in the first unit.

Administration Procedure

See Student Activity for the Letter Press Printing

General Teacher Outline

I. Assembling the image carrier

A. Prepare the copy for the camera

1. Select type sizes from the shop style sheet and use the headliner or selectric typewriter to compose the type for the pad

2. Make a paste-up of the job

3. Make a line shot in the camera room

B. Make the offset plate

1. Strip the negatives into the goldenrod
2. Burn the offset plate and develop it

II. Transfer the image

A. Prepare the offset press

1. Prepare the inking mechanism
2. Prepare the dampening system
3. Make initial inking and dampening
4. Install plate on the press and make feeder adjustments
5. Make register board adjustments
6. Adjust the impression
7. Make the trial impression
8. Adjust the margins
9. Adjust delivery

B. Run the job on the offset press

III. Packaging

A. Pad and trim the copy

Materials needed per student

1. 13 sheets of 17" x 22" paper (choice of colors)
2. Padding compound
3. Sheet film
4. Goldenrod
5. Personal photo halftone

Equipment needed per student

1. Shop type style sheet
2. Offset press
3. Headliner
4. T-square
5. Triangle
6. Ruling pen
7. Process camera
8. Plate maker
9. Paper cutter
10. Padding press
11. Selectric (IBM) typewriter

HANDOUT SHEET FOR MEMO PAD ACTIVITY

NOTE TO THE STUDENTS: Do each of the following items in the sequential order given and then check to the left of the number when complete.

The operations involved in making a photographic offset plate for the memo pad and printing it on the offset press are both technical processes.

____1. Make a design layout for a memo pad using paper furnished by the instructor, size 5½" x 8½". The sheets of this pad should communicate at least three things to the receiver about yourself:
   a. Your name
   b. Your picture
   c. Your motto or slogan

____2. After receiving the instructor's OK on your design layout, select type sizes from the shop style sheet and, using the headliner, compose the type for the pad.

____3. Refer to your layout. Your layout is your guide for making the paste-up. Arrange the type according to the layout. Darken in the area where your picture will be placed. (The instructor will probably want two students on each sheet of film for the line shot)

____4. After receiving the instructor's OK on the paste-up, make a line shot in the camera room. To operate the camera, you should familiarize yourself with the following steps in using a camera:
   a. Scaling the copy (Determine the percentage relationship between the size of the reproduction and the size of the original copy)
   b. Loading the copy
   c. Setting the iris diaphragm control
   d. Positioning the ground glass
   e. Setting the scales
   f. Checking image and lighting
   g. Setting the electric timer
   h. Loading the film
   i. removing the film

____5. Develop the line shot negative
   a. Place film in developer
   b. Check development on the gray scale
   c. Place film in stop bath

d. Place film in fixer
e. Wash film in water

____6. Get your picture halftone and line shot negative from the instructor. Strip the line shot and halftone negatives into a goldenrod flat and burn the offset plate.

____7. Develop the offset plate
a. Scrub the plate with process gum
b. Apply a puddle of developing ink the size of a nickel and spread it over the plate and develop

____8. Familiarize yourself with the safety rules for operating the offset press.

____9. Receive from your instructor thirteen (13) sheets of 17" x 22" paper. Using the math formula for paper cutting that was discussed by the instructor, determine how many sheets of 5½" x 8½" sheets can be cut from the larger 17" x 22" sheets. Set up the paper cutter with your group to cut the paper to size. Have the instructor OK the cut before you cut the paper to size.

___10. Mount the plate on the offset press and print 100 sheets for your memo pad.

___11. Place several memo pads in the padding press. Place chipboard between each pad and on top and bottom. Jog the sheets together and tighten down the press. Apply theppadding compound.

___12. After the padding compound dries (one hour), trim the memo pad in the paper cutter.

___13. Turn the memo pad in for a grade.

OFFSET PRINTING

CHRISTMAS CARD

Student Learning Objectives

Learn the principles of offset printing including:

a. Producing an image carrier
b. Transferring of the image
c. Operating the offset press safely
d. Designing the communicative material
e. Working as an effective team member in producing communication materials
f. Packing, binding, and trimming communication materials for distribution

Each student is to make a design layout for a Christmas card. This card should communicate a Christmas message from the student to a receiver. This layout may include illustrations, lines, and lettering. (Refer to IV for design information.)

Administration Procedure

Refer to Student Activity XIII-3, the administration procedure

General Teacher Outline

I. Assemble the image carrier

A. Plan the layout on the direct image plate
1. Margins
2. Spacing
3. Lettering
4. Folding

B. Make the plate
1. Using a lithographic pencil (grease base), draw the illustrations, lines, and lettering which go together to make the Christmas card. The design layout should be the guide.

II. Transfer the image

A. Prepare the offset press
1. Prepare the inking mechanism
2. Prepare the dampening system

3. Make initial inking and dampening
4. Install plate on the press and make feeder adjustments
5. Make register board adjustments
6. Adjust the impression
7. Make the trial impression
8. Adjust the margins
9. Adjust delivery

B. Run the job on the offset press

III. Packaging

A. Using a pattern, layout 20 envelopes and cut them out. Fold and glue them.

B. Insert printed cards in envelopes

Materials needed per student

1. Five (5) sheets of 17" x 22" Texo-Paqe paper (choice of colors)
2. Lithographic pencil (grease base)
3. Direct image plate
4. Elmer's glue

Equipment needed per student

1. T-square
2. Triangle
3. Offset press
4. Paper cutter
5. Scissors

HANDOUT SHEET FOR CHRISTMAS CARD ACTIVITY

NOTE TO THE STUDENTS: Do each of the following items in the sequential order given and then check to the left of the number when completed.

____1. Make a design layout for a Christmas card on paper furnished by the instructor, size 8½" x 11". This card should communicate a Christmas message from you to the receiver. This layout may include illustrations, lines, and lettering. You should draw on information from Unit IV.

____2. After receiving the instructor's OK on your design, plan the direct image plate for:
   a. Margins
   b. Lettering
   c. Folding

____3. Using a lithographic pencil, transfer the design to the plate.

____4. Familiarize yourself with the safety rules for operating the offset press.

____5. Receive five sheets of paper from your instructor, size 17" x 22" Texo-Paqe. Using the math formula for cutting that was discussed by the instructor, determine how many sheets of 8½" x 11" can be cut from the larger 17" x 22" sheets. Set up the paper cutter with your group to cut the paper to size. Have the instructor OK the cut before you cut the paper to size.

____6. Mount the plate on the offset press and print 20 Christmas cards.

____7. Receive 5 sheets of paper, size 17" x 22", and an envelope pattern from the instructor. Using the pattern, layout 20 envelopes, four from each sheet of paper. Fold and glue the envelopes.

____8. Place the cards in the envelopes. Turn one card in for a grade.

SILK-SCREEN PRINTING

PRINTING ON A T-SHIRT

Student Learning Objective

Learn the principles of silk-screen communications, including assembling the image carrier and transferring the image.

Each group of students will design an expression or concept to communicate an idea to the receiver, via a T-shirt. The design could be the school symbol or name, or the student's own idea. It will be a requirement that the student communicate some idea or concept on the T-shirt.

Administration Procedure

Two-tenths of the students in the class will work in the silk-screen area at one time.

General Teacher Outline

Refer to Handout Sheet for Printing on a T-Shirt, Student Activity XIII-5.

Materials and Equipment

1. Vinylite or Mylar .002" to .005" thick
2. Carbon tissue
3. A photographic contact frame
4. A silk-screen frame
5. Photo-flood lamp
6. A porcelain finished tray
7. A squeegee or hand roller
8. Potassium dichromate
9. Distilled water
10. Engraver's opaque or India ink
11. Appropriate printing ink for T-shirt
12. Squeegee for printing
13. Spatula
14. Masking tape and paper
15. Newspaper
16. Supply of T-shirts

HANDOUT SHEET FOR PRINTING ON A T-SHIRT ACTIVITY

I. Assembling the image carrier

A. First, the desired design is made on thin transparent plastic or tracing paper with India ink or engraver's opaque ink.

B. Give the silk-screen to be used a thorough washing. Using hot water and soap, wash both sides of the screen, rubbing with the fingers in brisk strokes.

C. Dissolve 2½ ounces of potassium dichromate into 1 gallon of cool distilled water. The crystals must be completely dissolved. The mixed solution is sensitive to light and must be stored in a well-corked dark bottle.

D. Cut a piece of carbon tissue about 2" larger on all edges than the design.

E. Cut a piece of Mylar (clear plastic) .003" thick, slightly larger than the design.

F. Pour the dichromate into the developing tray to depth of at least ½".

G. Immerse carbon tissue into the tray of dichromate. The pigment side is upward. Hold the carbon tissue under the surface until the paper becomes soft and lies flat.

H. The tissue should then be turned over and immersed, coated side down. When the two ends of the tissue start to curl, it is ready for removal.

I. When air bubbles appear on the tissue, it is not absorbing the sensitizing solution in that particular spot. With the finger, or a soft brush, rub the surface lightly to remove the bubble.

J. While the tissue is still immersed, lay the vinylite or Mylar sheet on a perfectly smooth, clean surface.

K. Next, remove the tissue from the sensitizing bath and place it, gelatinous side down, on the transparent sheet. Press a squeegee or photo-print roller over the tissue, working from the center outward in all directions.

L. Using a clean cloth, wipe off the plastic sheet and then cover the tissue with a clean, dry piece of blotting paper. Keep the

tissue flattened with a light weight for five to ten minutes. The tissue film is not light sensitive and should be used immediately for best results.

M. Exposing the sensitive film is the next step in the process. First, the photo-positive or design is placed on a piece of glass, right side (inked side) up.

N. The transparent support, (Mylar) and tissue is then centered on top of the photo-positive, (design) with its support side down.

O. This assembly is then clamped into the printing frame or sandwiched tightly between glass sheets.

P. Exposure, if a photo-flood light is used, is 7 to 15 minutes at a distance of 2' to 2½' between the bulb and the frame.

Q. Developing out the photo-stencil film merely consists of washing away those areas which have not been exposed to light; that is, the design itself. Those parts exposed to light are hardened and will not dissolve in water.

R. Developing must be done in hot water. Using a shower spray attachment, adjust the hot and cold taps to a light flow of 100°-110° F. Use a good Fahrenheit thermometer to check the temperature.

S. Turn a large tray upside down in the sink and place the exposed tissue and support on the tray bottom, support side down. Soak the white tissue backing with the hot water spray until the tissue begins to leak out all around the edges.

T. When this occurs, pick up a corner of the white backing sheet and carefully peel it away from the tissue and support. This must be done slowly.

U. With the backing sheet removed, keep the spray of hot water flowing over the tissue until all the soluble parts have washed away and the total design appears sharp and clear with no discoloring of the rinsing water.

V. Place the stencil and the Mylar support on soft paper, such as newsprint, to absorb water from the back of the stencil. Place the stencil in register with the design on the base of the printing frame.

W. Lower the screen frame onto the stencil. Place a piece of blotting paper, or newsprint, over the stencil and gently rub; this

forces the soft pigment into the meshes of the silk. Keep the blotting paper in one position.

X. It will take about thirty minutes for the pigment to dry in the meshes of the screen. This can be hastened by the application of heat. When the pigment and screen are thoroughly dry, the Mylar temporary support will fall off, or it may be peeled off, leaving the pigment in the screen. The remaining open areas in the screen may be masked or blocked out, and the screen is ready for printing.

Y. To remove photographic stencils from a screen, detach the base from the frame. Soak the stencil in warm water for about three minutes; then brush the stencil, flushing away the pigment with warm water.

II. Transferring the image

A. Use a spatula to place a quantity of ink in the screen frame. Sufficient ink should be used so that it will roll in front of the squeegee, covering the design in one stroke.

B. The squeegee is held at a slight angle so that only the sharper edge of the rubber blade contacts the silk. With a firm downward pressure, pull the squeegee across the open areas in the screen. To get best results, use only one stroke to make one print. The squeegee should be wide enough to cover the area of the design. It is also important that the rubber blade of the squeegee be straight, and the edges sharp. When the blade becomes rounded, it can be sharpened by drawing it back and forth over sandpaper, holding the squeegee in a vertical position.

C. Raise the screen frame, remove the printed copy, and insert another sheet to the register guides. Under normal conditions, without artificial heat, about thirty minutes is required for the ink to dry. Prints should be laid out singly in the drying rack. Do not stack them until they are dry.

III. Cleaning the printing frame

A. When the printing operation has been completed, clean the screen printing frame. Screens are most easily cleaned immediately after printing, before the ink dries in the meshes of the silk.

B. Use a piece of scrap cardboard to scrape up the ink remaining in the frame. Use an ink knife to push the ink from the cardboard back into the ink can. Do not scrape the ink knife on the edges of the can because it is necessary that the top edge of the can be kept clean so the cover will fit tightly to prevent the ink from drying out.

C. After excess ink has been taken out of the screen frame, remove the masking paper and wrap in newspaper before depositing in the wastepaper container.

D. Place several layers of newspaper under the screen printing frame. Saturate a wiping cloth with a solvent, then wash the silk and stencil on both sides. Screens properly cleaned after printing can be used for many stencils.

SIMULATION GAME

This packet contains components of a subassembly, or subassemblies. These subassemblies are two-dimensional. Your packet may contain components of another group's subassembly.

Your group's responsibility is to complete the subassembly which will later be taken to a final assembly area and joined to form the completed product, a Latin cross.

The instructor will be the communications control information source, for relaying information between groups and providing additional input or assistance.

If at any time you become stymied, record your apparent problem and a specific solution, for later discussion.

SIMULATION GAME: ASSEMBLY DRAWING COMMUNICATION CONCEPTS

I. Definition of game:

The game is a two-dimensional figure, composed of five two-dimensional subassemblies. The subassemblies are composed of a variable number of elements ranging from five to twelve.

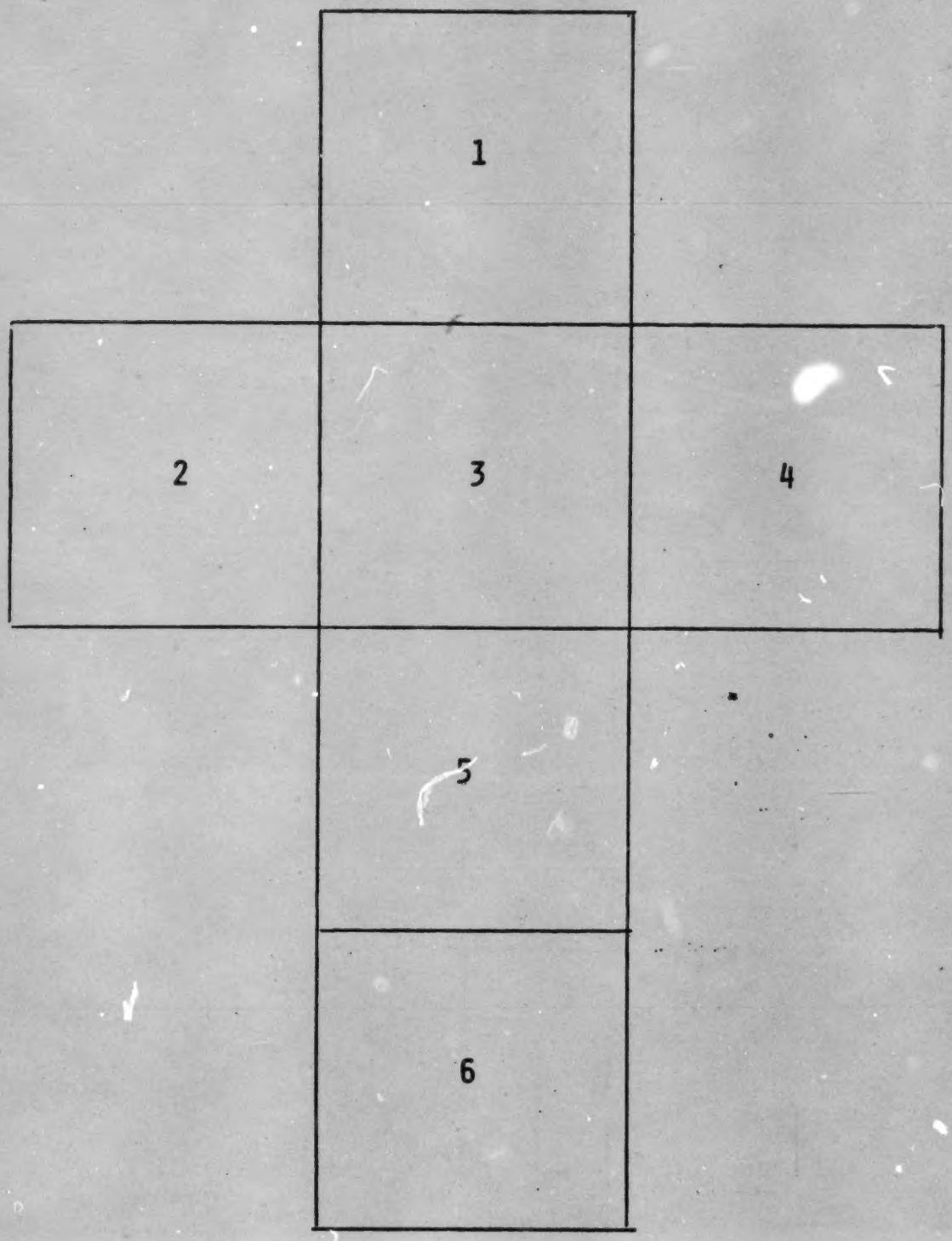
The subassemblies are scrambled and distributed to the participants along with the instructions. The game is concluded when an impasse is reached or the subassemblies are combined to complete the figure.

II. Rules:

A. Communications between groups are in written form and transmitted through communications control.

B. Communications control will provide input to the groups to facilitate endpproduction.

C. Graphic exchanges and personnel represetative exchanges are permitted between groups. (This includes exchanges of assembly components)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2
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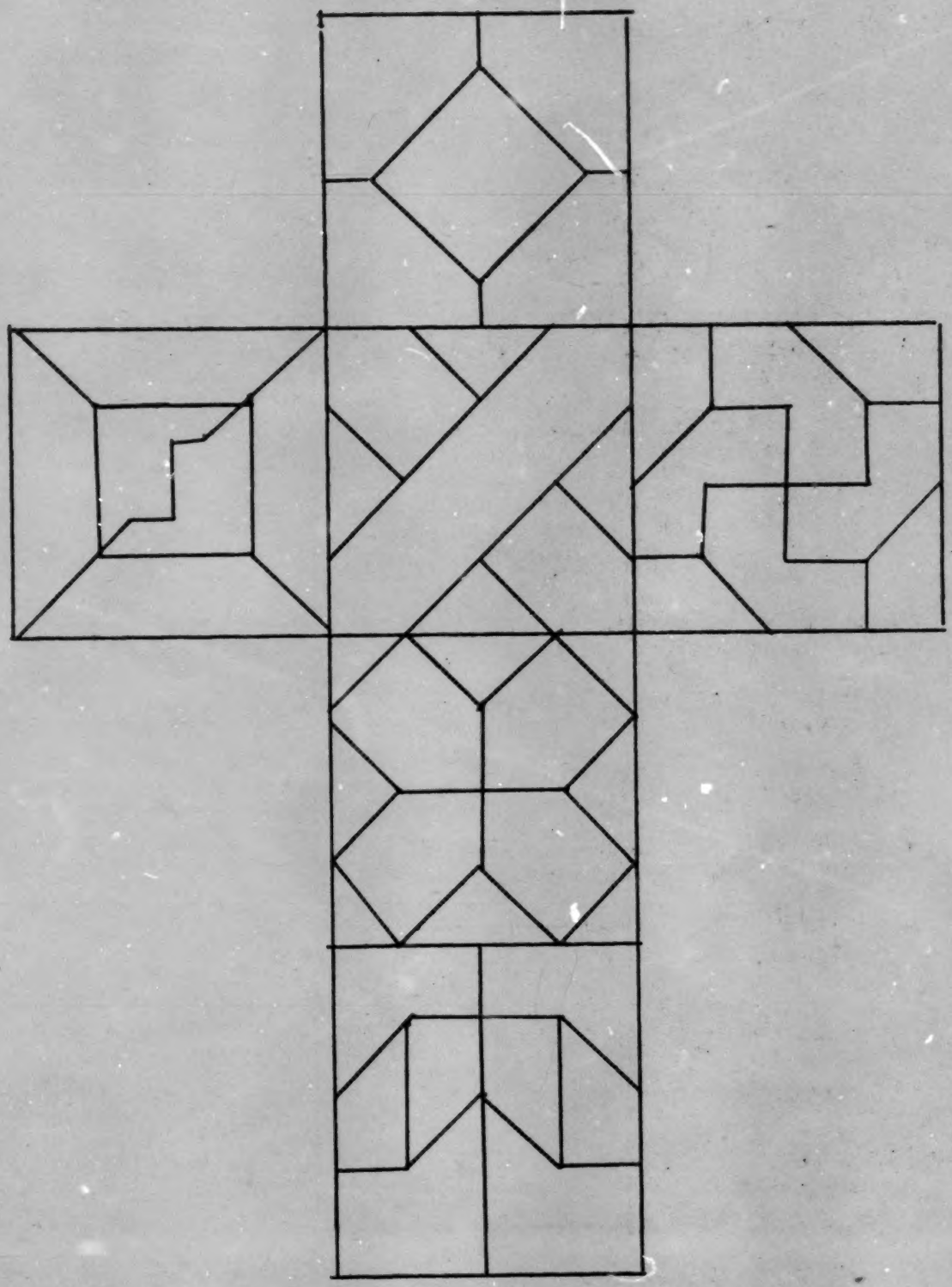
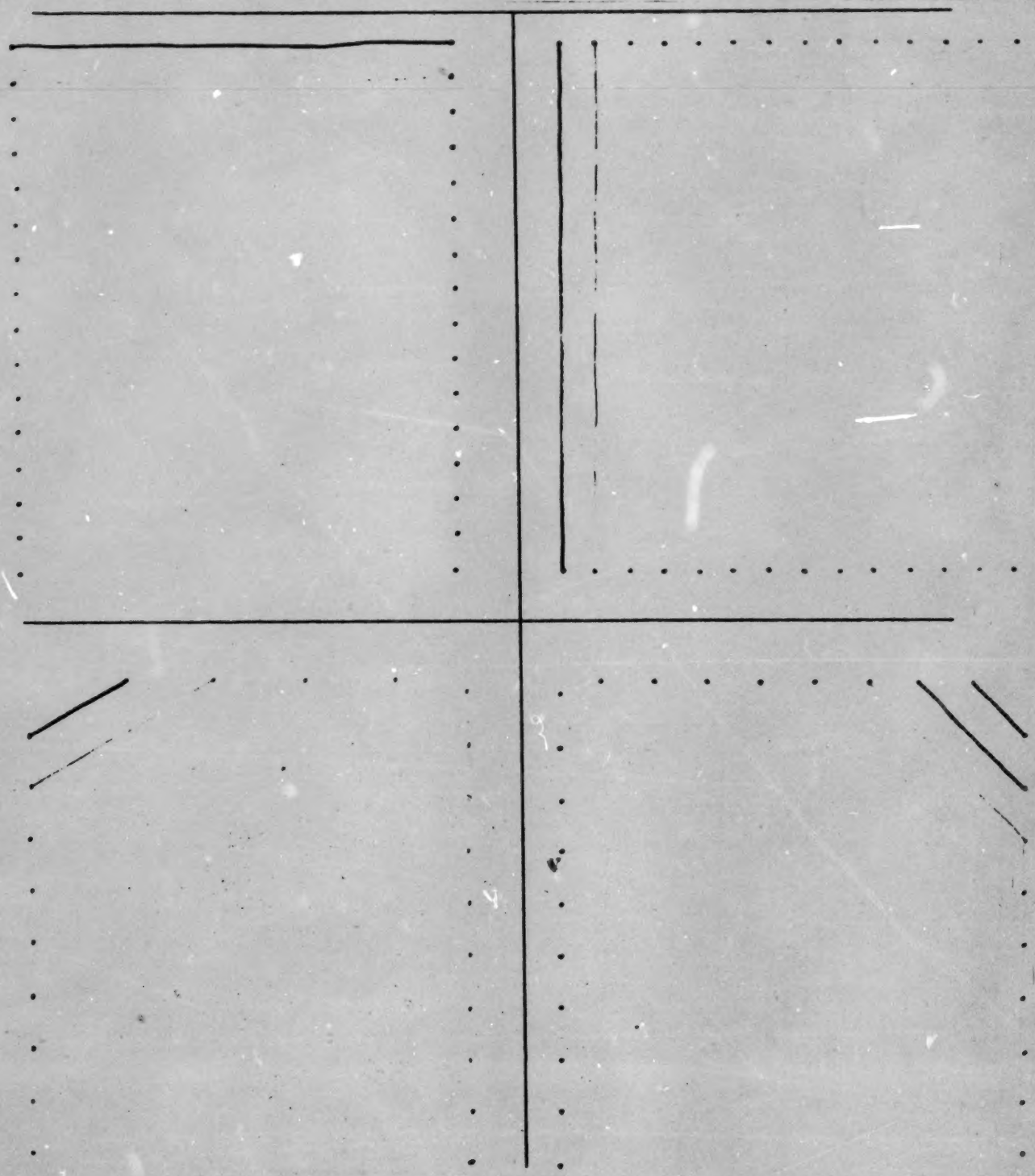


WORK SHEET - SKETCHING #1

General Instructions - Sketch the lines from point to point similar to the examples given in each of the four quadrants.



WORK SHEET - SKETCHING #2

General Instructions - Sketch the line alphabet starting with the example going to the opposite border. Where the names of the lines are given only, draw the line above the name as done in the first of the work sheet. In the lower right corner draw the lines indicated from one border to the other.

Visible object outline

Invisible object outline

2

Dimension line

Extension line

Section line

Center line

Cutting plane line

Short break

Long break

Visible object outline

Invisible object outline

2

Dimension line

Extension line

Section line

Center line

Cutting plane line

Short break

Long break

Visible object outlines

Invisible object outlines

Center lines

Alternating visible and invisible object outlines

WORK SHEET - SKETCHING #3

General Instructions - (a) Sketch two squares with the same center, 1" and 2" on each side. (b) Top - sketch a rectangle which is three times as long as it is wide. Bottom - sketch an equilateral triangle. (c) Top - sketch a 45° triangle. Bottom - sketch a 30° - 60° triangle. (d) Sketch a circle with approximately 1" radius. Use 30° and 60° inclined lines.

(a)

(b)

(c)

(d)

WORK SHEET - SKETCHING #4

General Instructions - (a) Sketch an ellipse which is three times as long as it is wide. (b) Sketch a hexagon which is approximately 2" across flats. (c) Sketch an octagon which is approximately 2" across flats. (d) Sketch a right triangle by the 3, 4, 5 method.

(a)

(b)

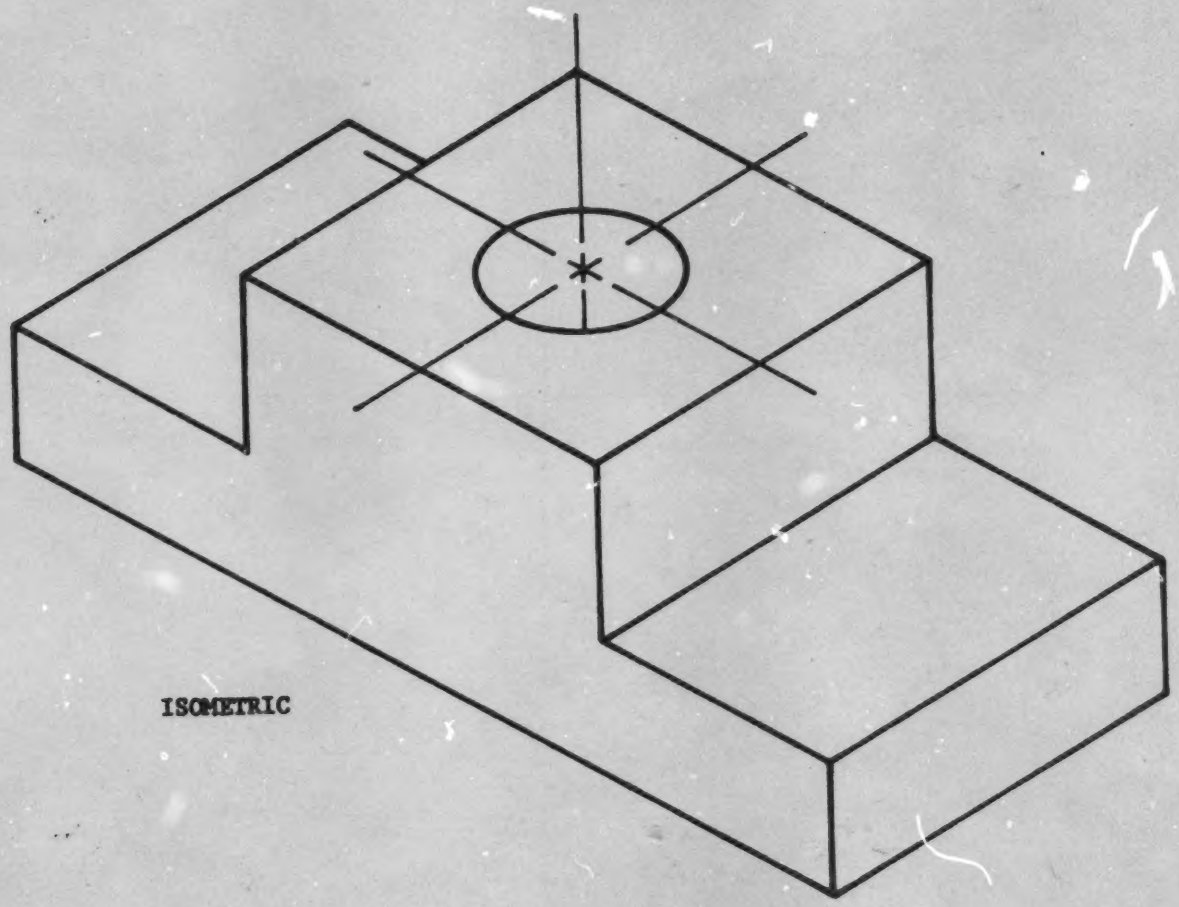
(c)

(d)

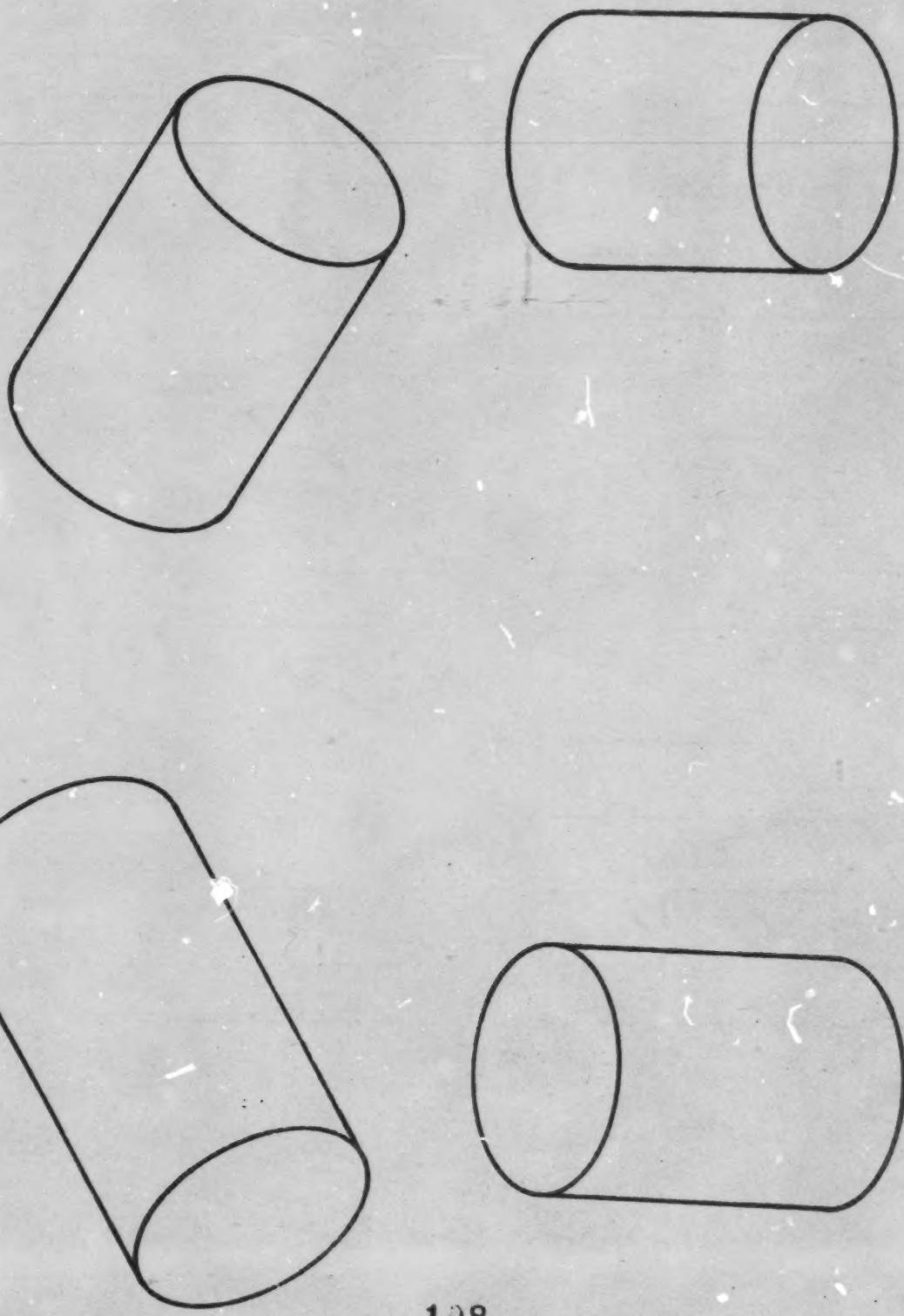
In the area below draw four isometric cubes of various sizes, with the last two cubes you will draw ellipses on all three sides.

(1) Draw a ½" cube.	(2) Draw a 3/4" cube.
(3) Draw a 1" cube with ellipses on all sides.	(4) Draw a 1¼" cube with ellipses on all sides.

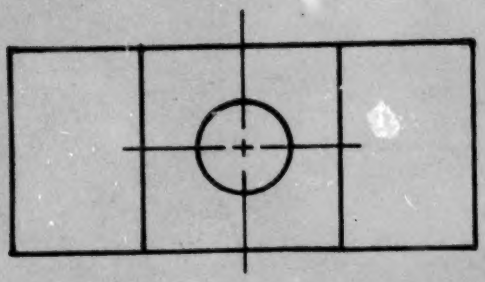
INSTRUCTIONAL AID XV-B

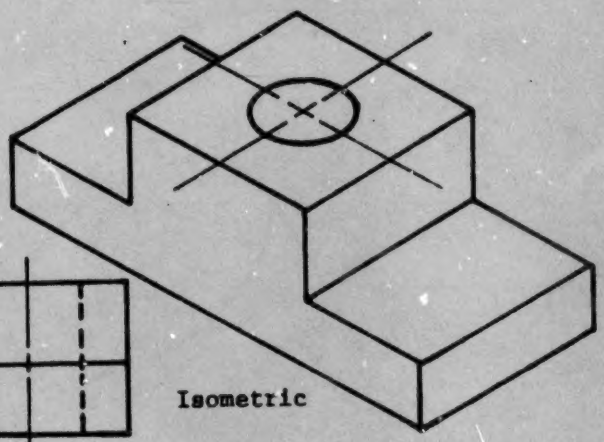


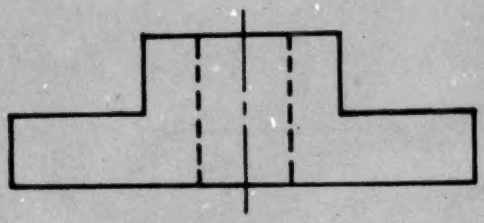
ISOMETRIC

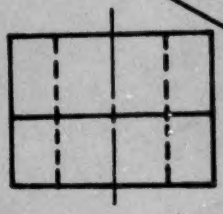


INSTRUCTIONAL AID XV-B



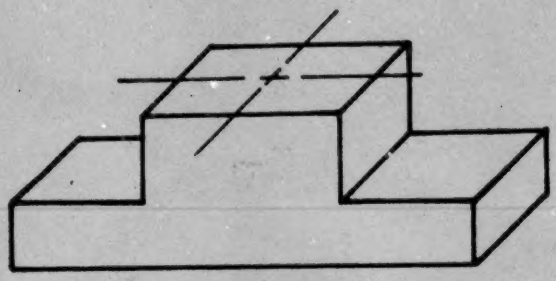


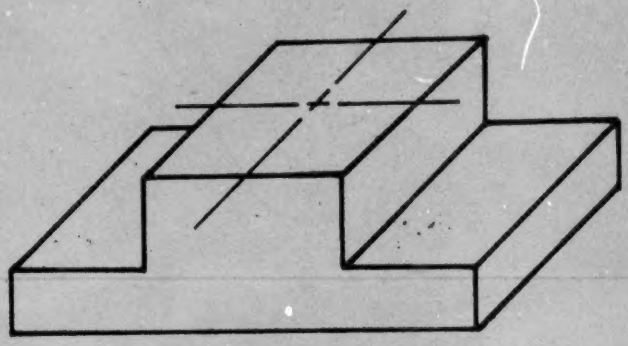




Isometric

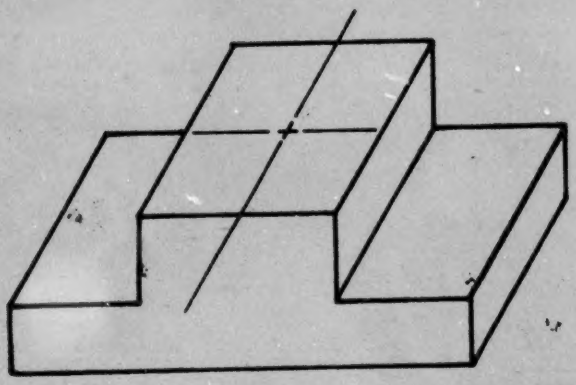
Othographic

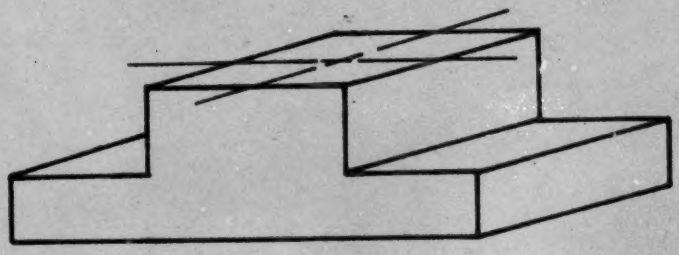




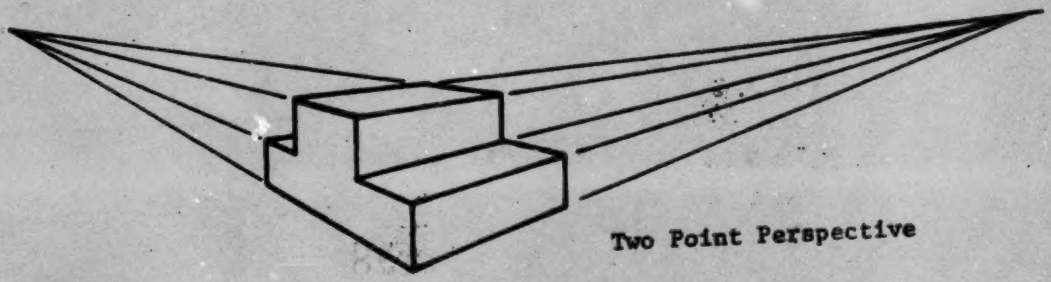
Cabinet Oblique

Cavalier Oblique



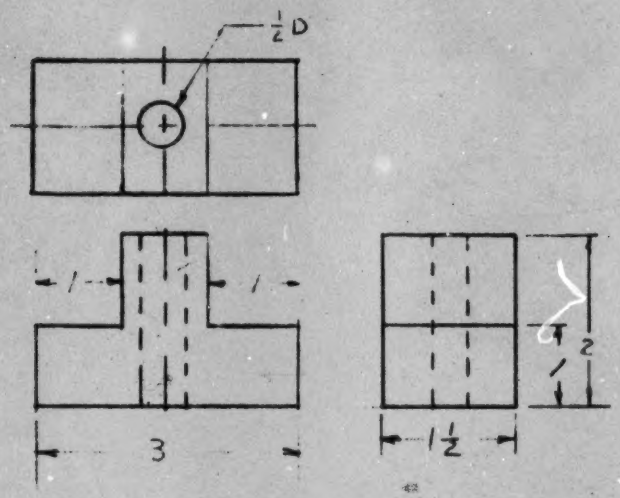


General Obliques

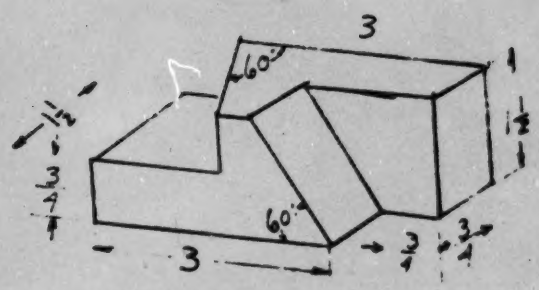


Two Point Perspective

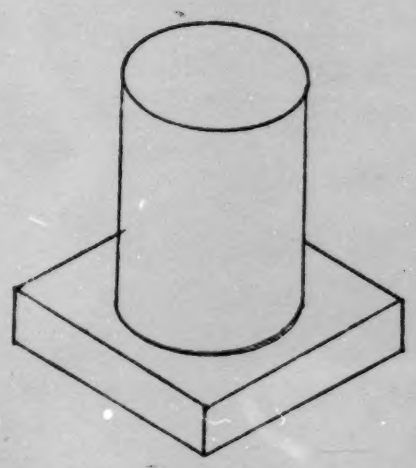
Sketch an isometric drawing from the orthographic drawing.



Sketching non-isometric lines
Draw the object below.

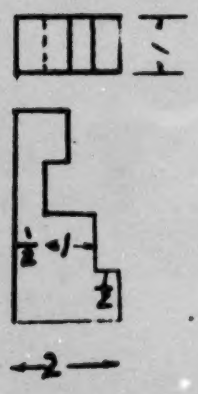


Sketching isometric circles and arcs. Draw the object below. Dimension it using the unidirectional system.



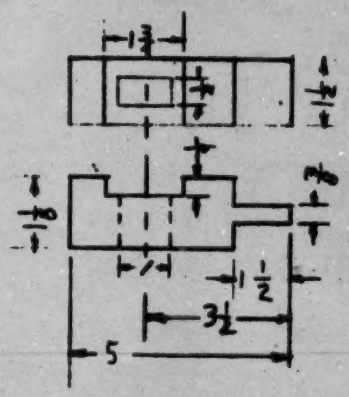
Base	Cylinder
3½ sq.	2¼ dia.
3/4 high	3½ high

Sketching and dimensioning isometric drawings
Dimension the sketch using the aligned system.



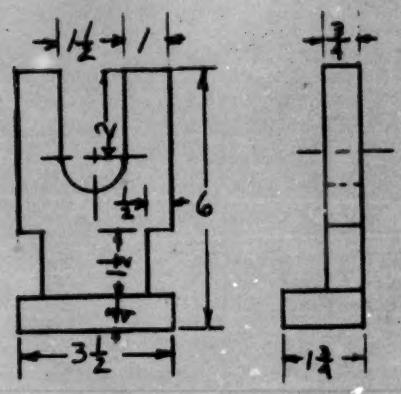
Sketching a cavalier drawing

Refer to Unit XV-C. Then draw the object below using the dimensions given.



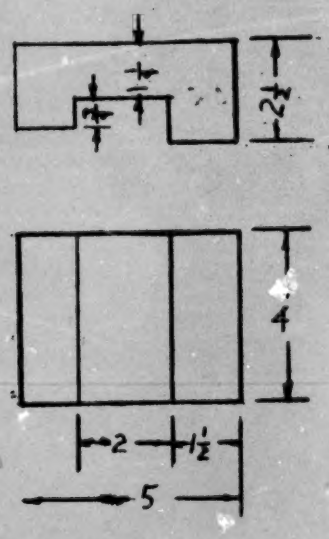
Sketching a cabinet drawing

Refer to Unit XV-C. Then sketch the object below using the dimensions on the object.

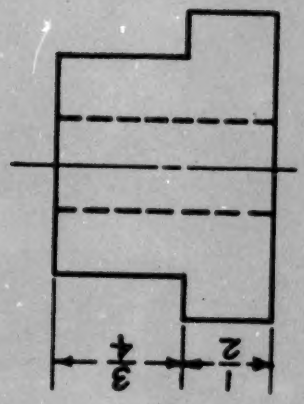


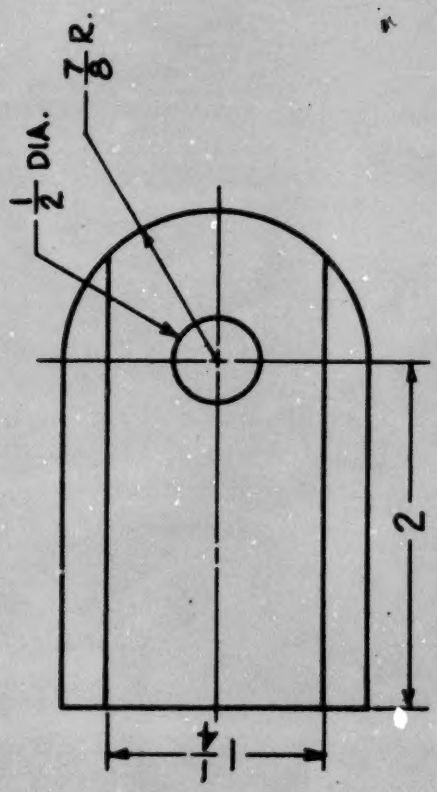
Sketching a general oblique drawing

Refer to Unit XV-C. Then select the angle and percentage of foreshortening on the receding axis that you want to use and sketch the object below using the dimensions given.

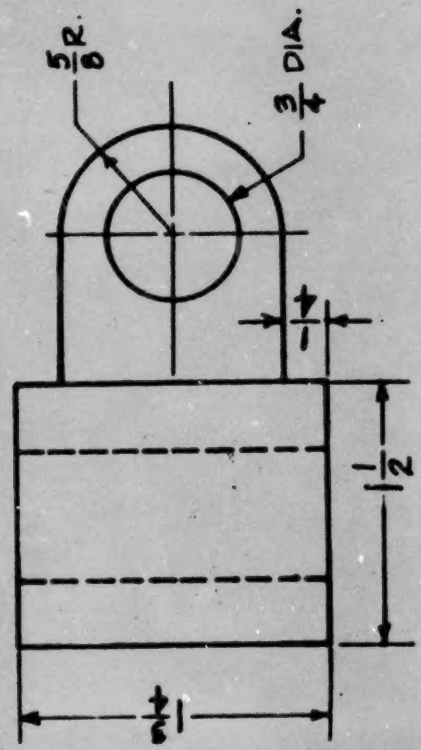


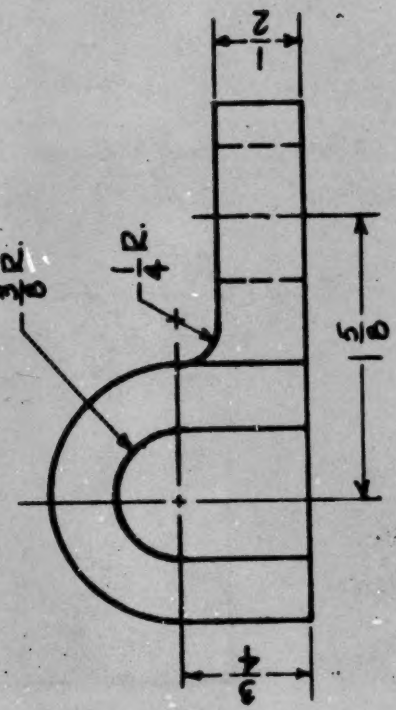
WORK SHEET: DRAW IN THE MISSING VIEW



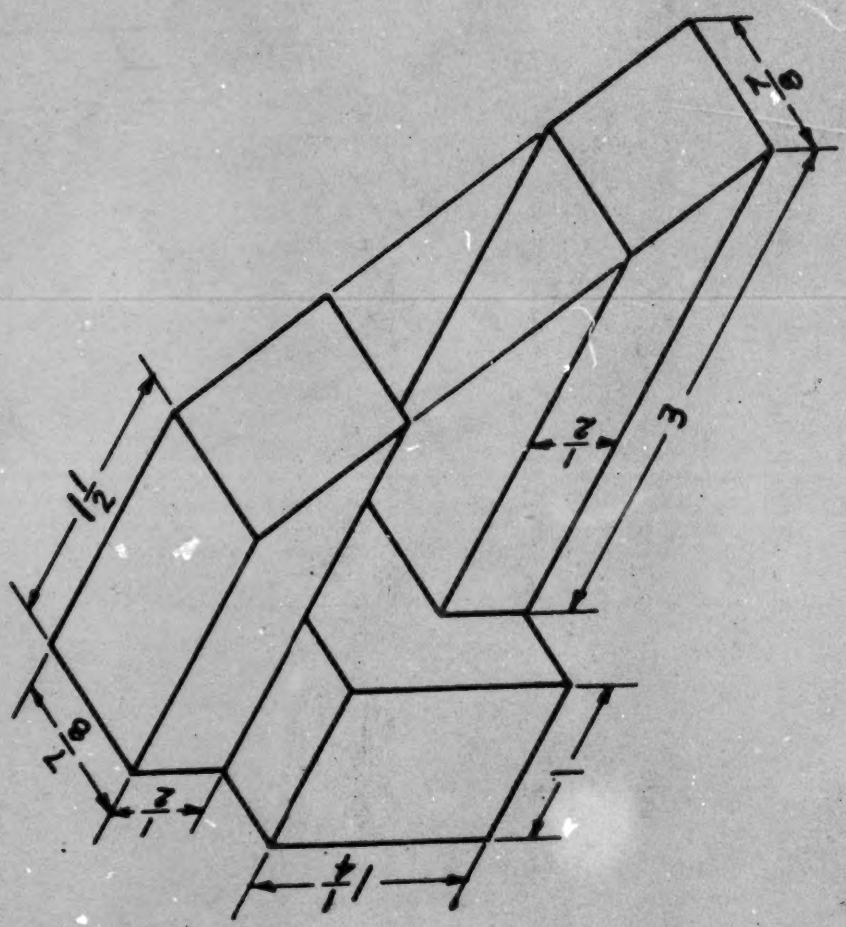


WORK SHEET: DRAW IN THE MISSING VIEW

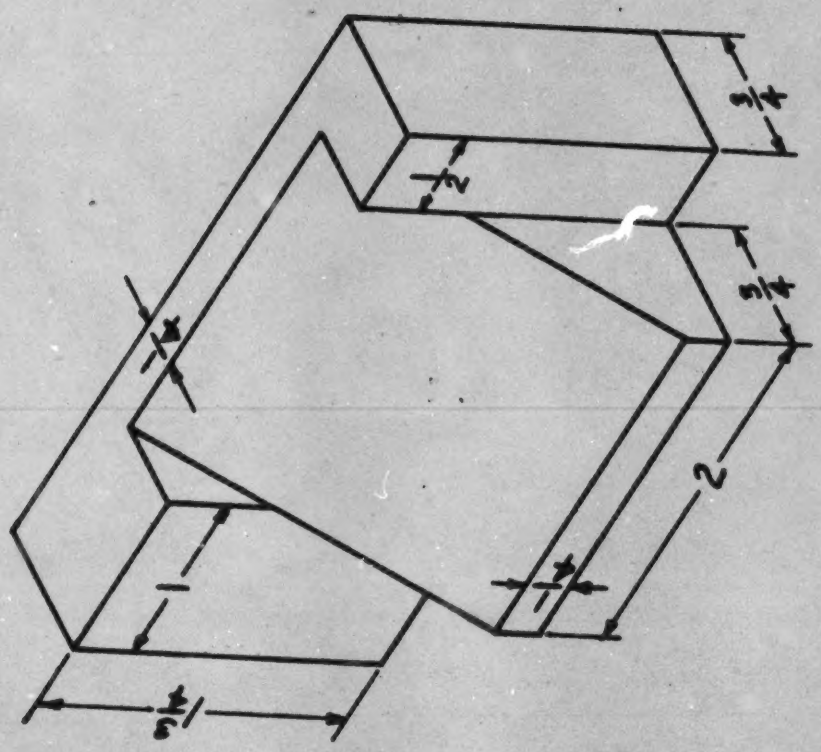




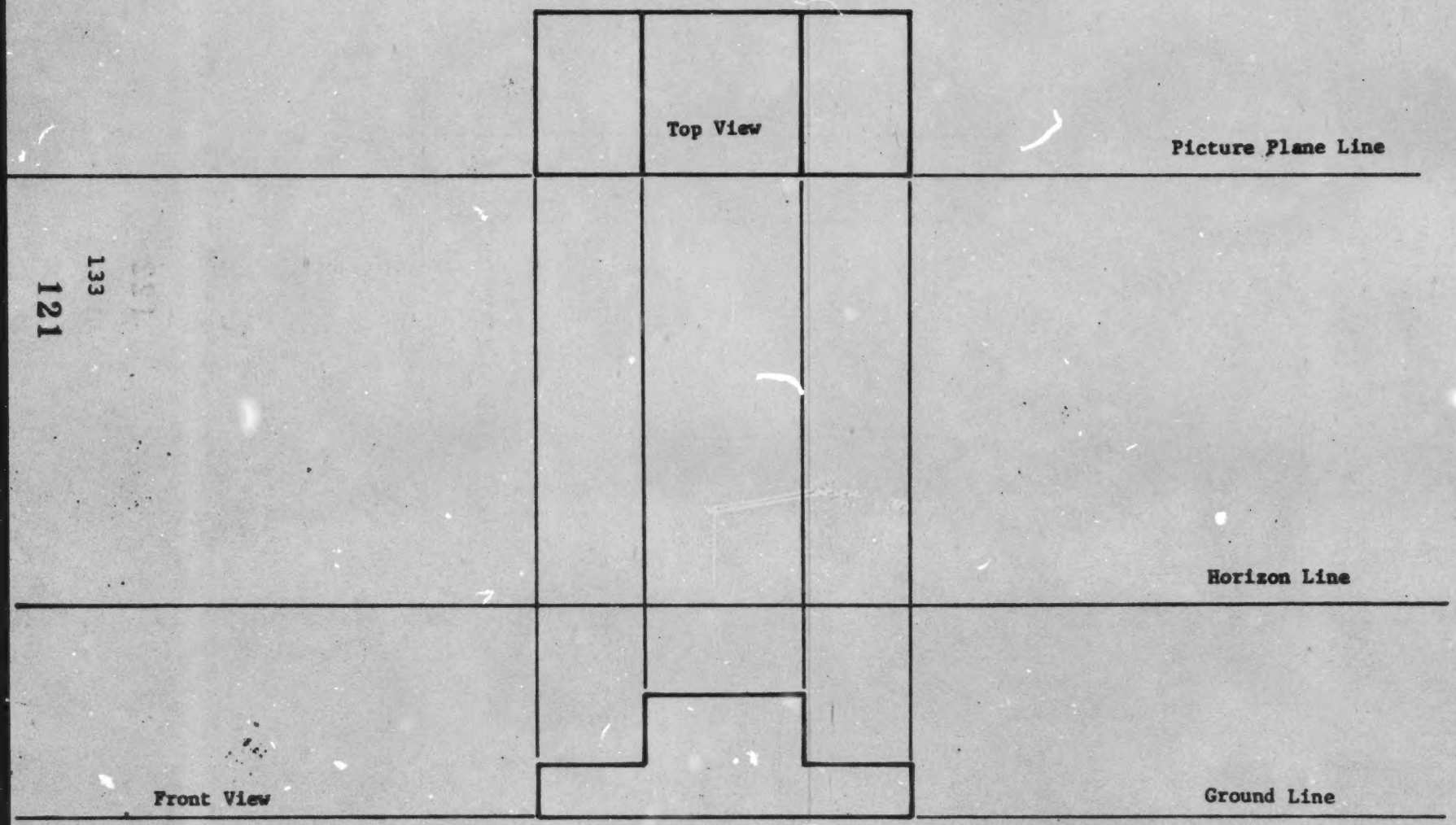
DRAW THREE VIEWS OF THE OBJECT BELOW



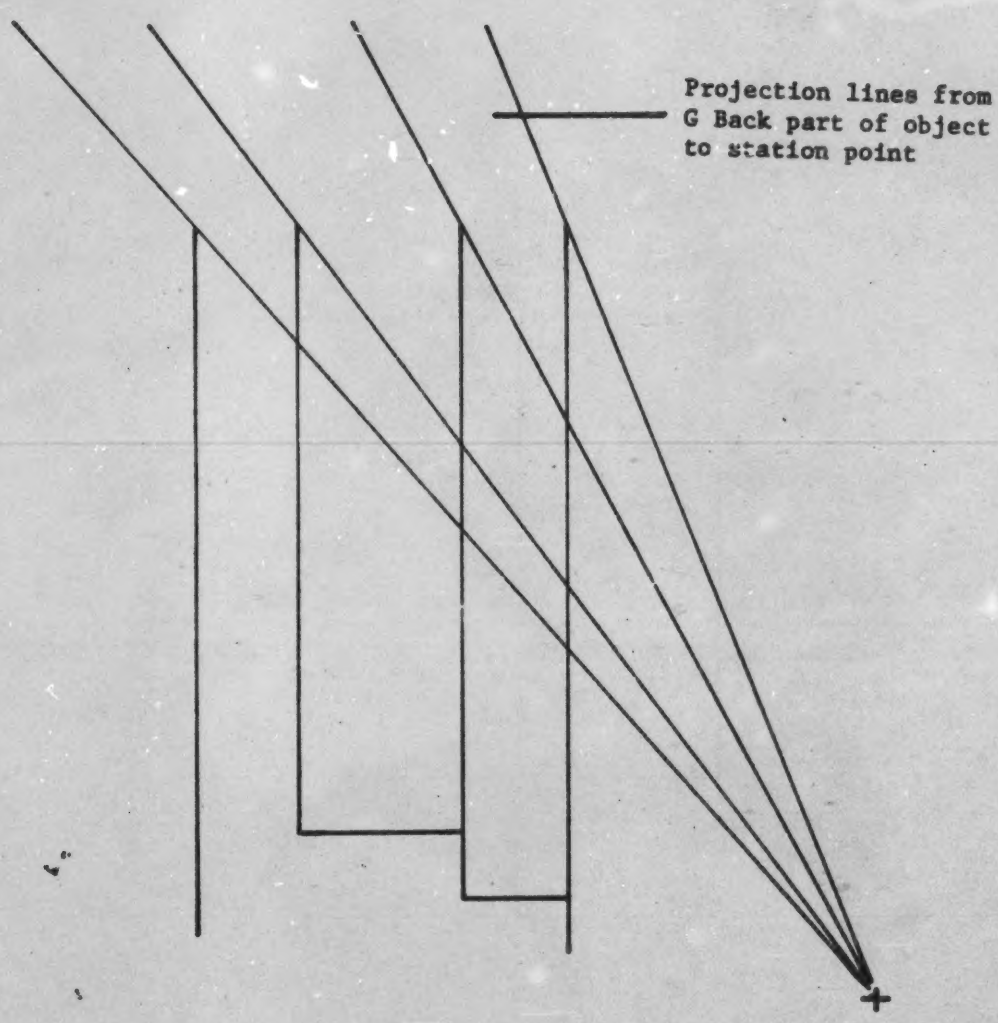
DRAW THREE VIEWS OF THE OBJECT BELOW



Steps 1, 2, 3, 4, and 5

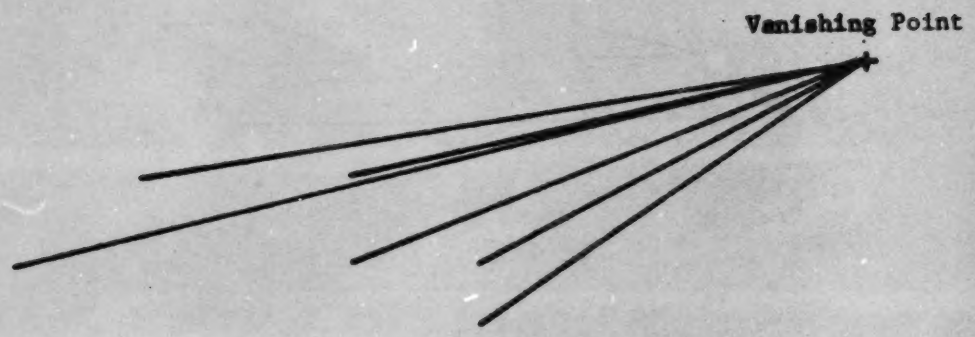


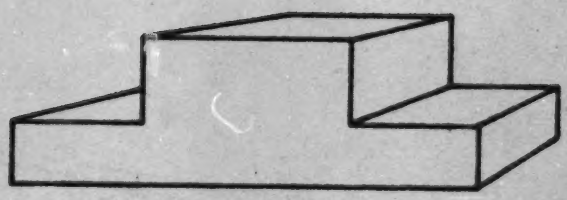
Steps 6 and 7

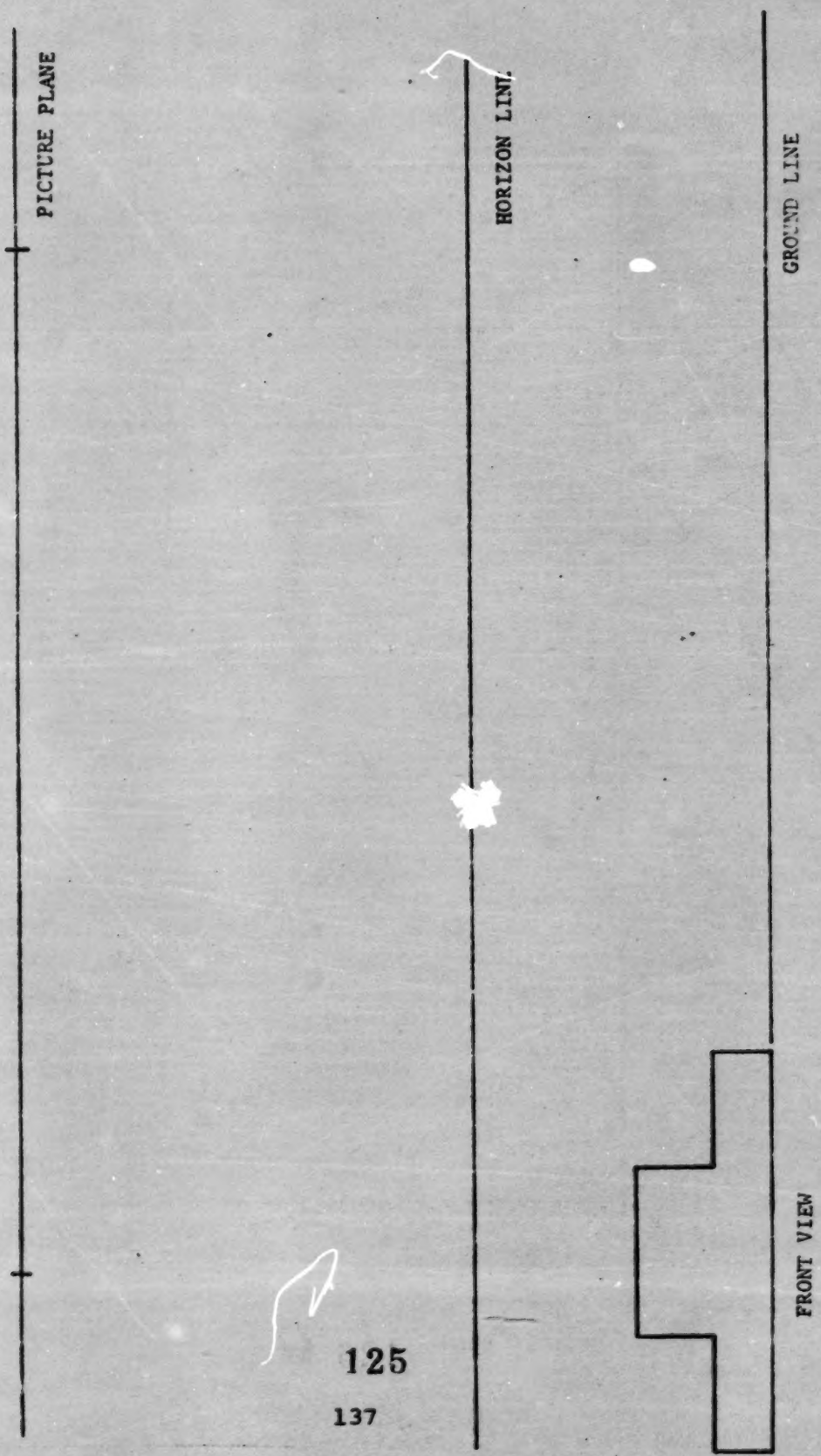


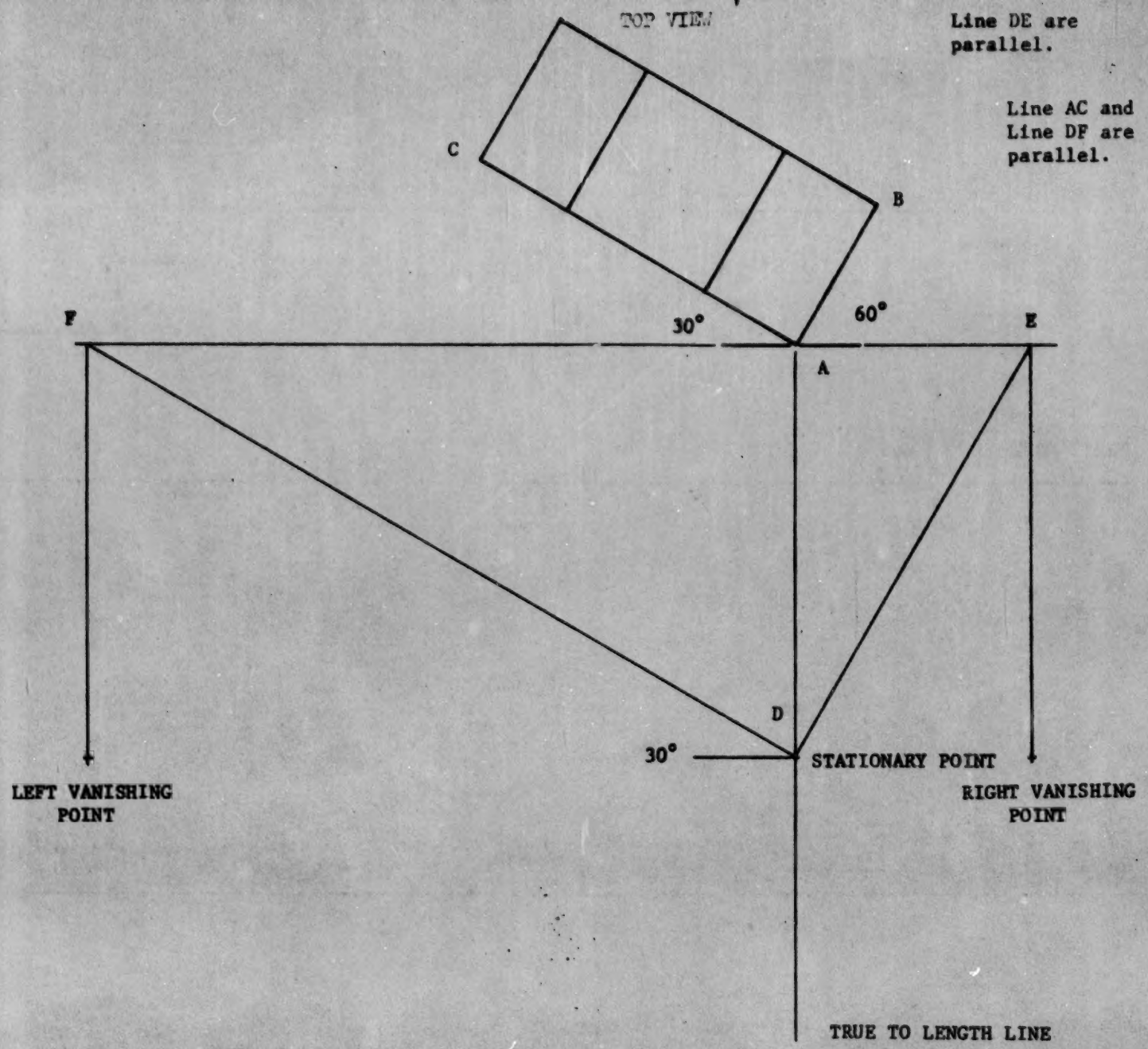
(Note when any line intersects the PP, you project down vertically to the GL.)

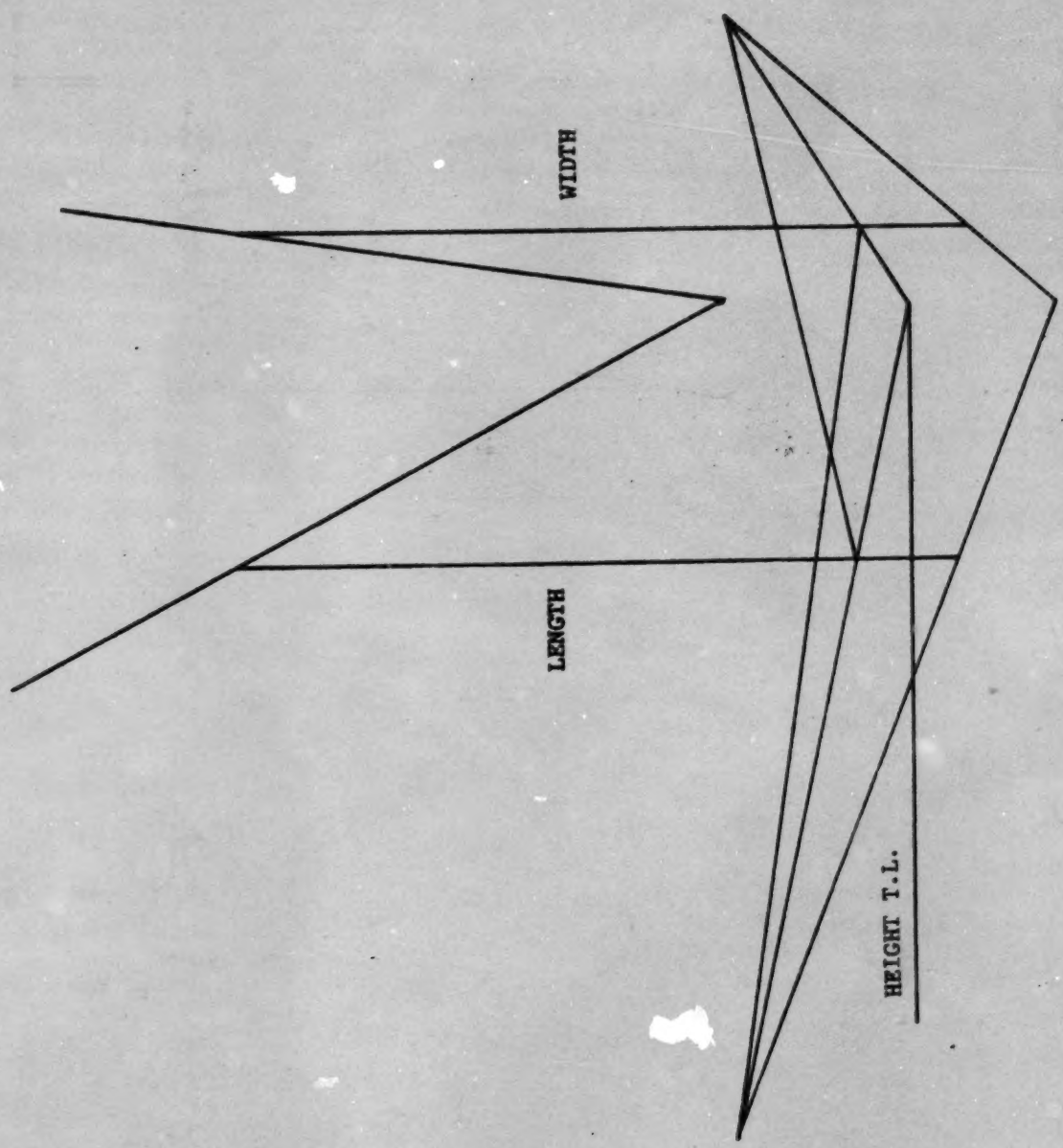
Step 8

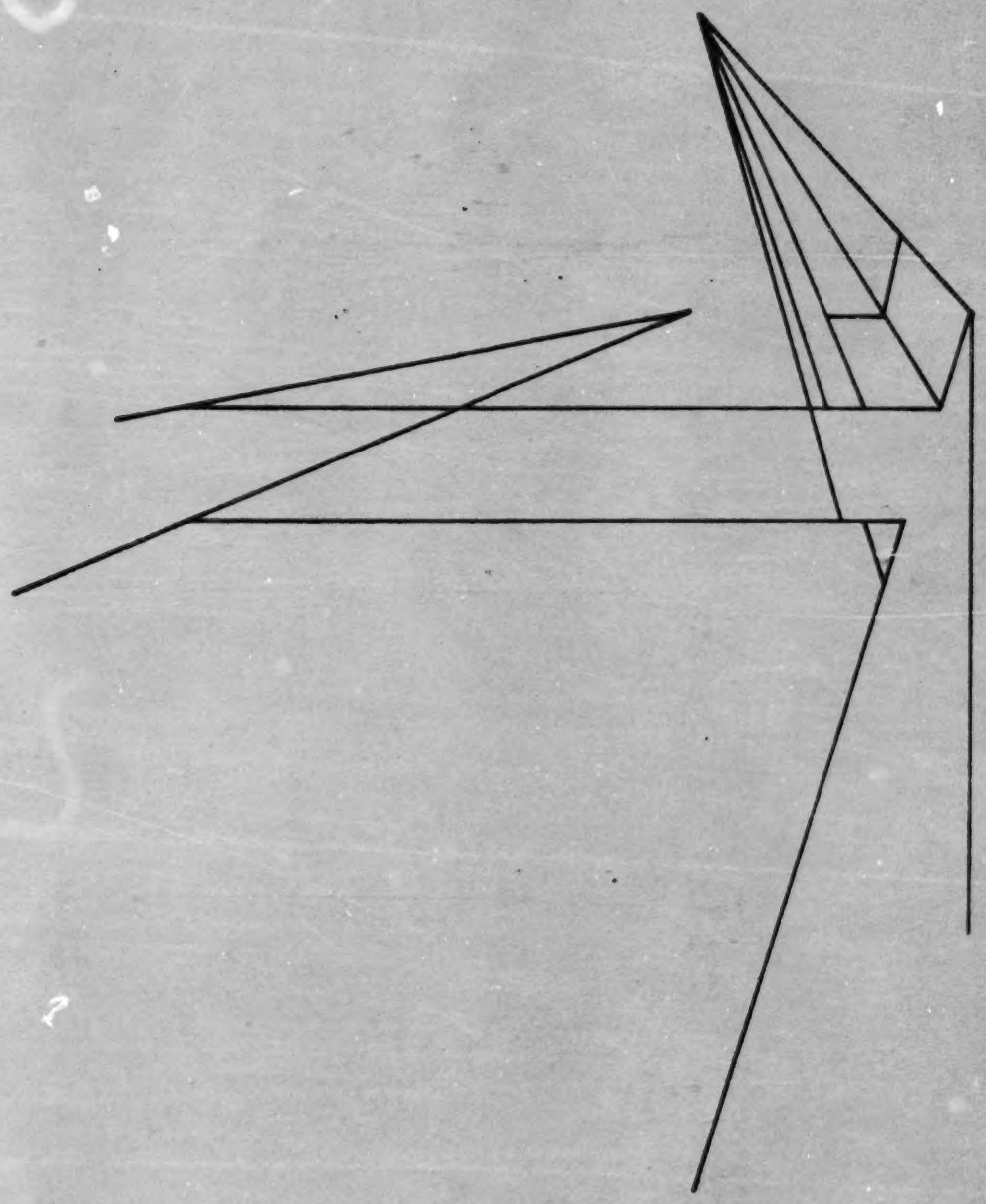




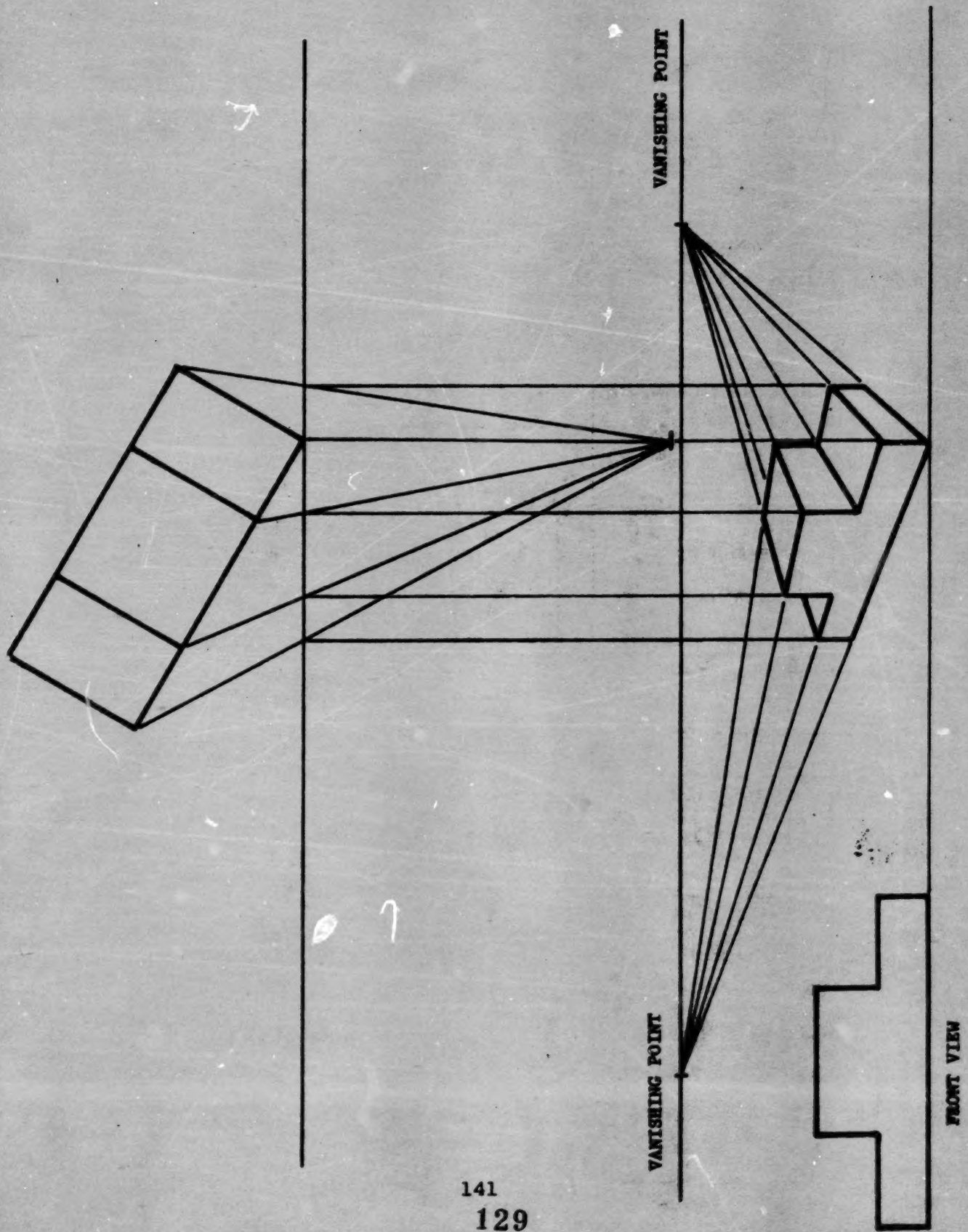

PICTURE PLANE
HORIZON LINE
GROUND LINE
FRONT VIEW


TOP VIEW
Line DE are parallel.
Line AC and Line DF are parallel.
C
B
F
30°
60°
E
A
D
30°
STATIONARY POINT
LEFT VANISHING POINT
RIGHT VANISHING POINT
TRUE TO LENGTH LINE


WIDTH
LENGTH
HEIGHT T.L.



INSTRUCTIONAL AID XV-F



WORK SHEET - SECTIONING #1

General Instructions - Below are rectangles with the name of a material lettered below each rectangle. Show the correct section symbol for the material indicated by sketching within the rectangle the standard symbol found in the reading of this lesson.

TRANSPARENT MATERIALS

CONCRETE

BRASS

INSULATION

STEEL

FIREBRICK

PLASTIC

WOOD

ALUMINUM

SAND

WATER

LEAD

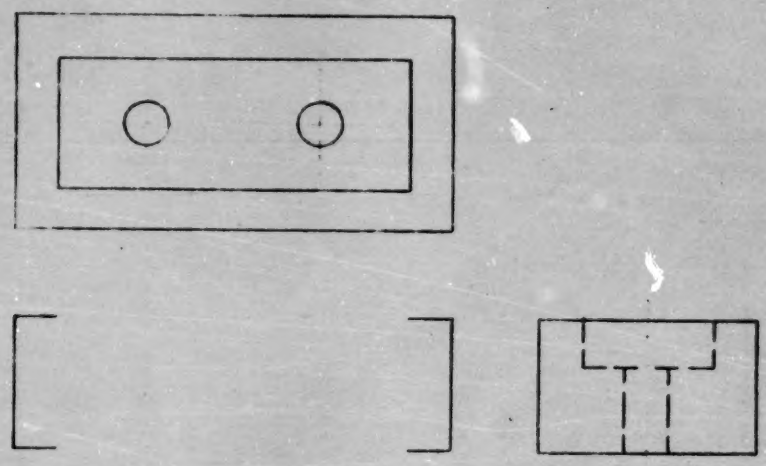
EARTH

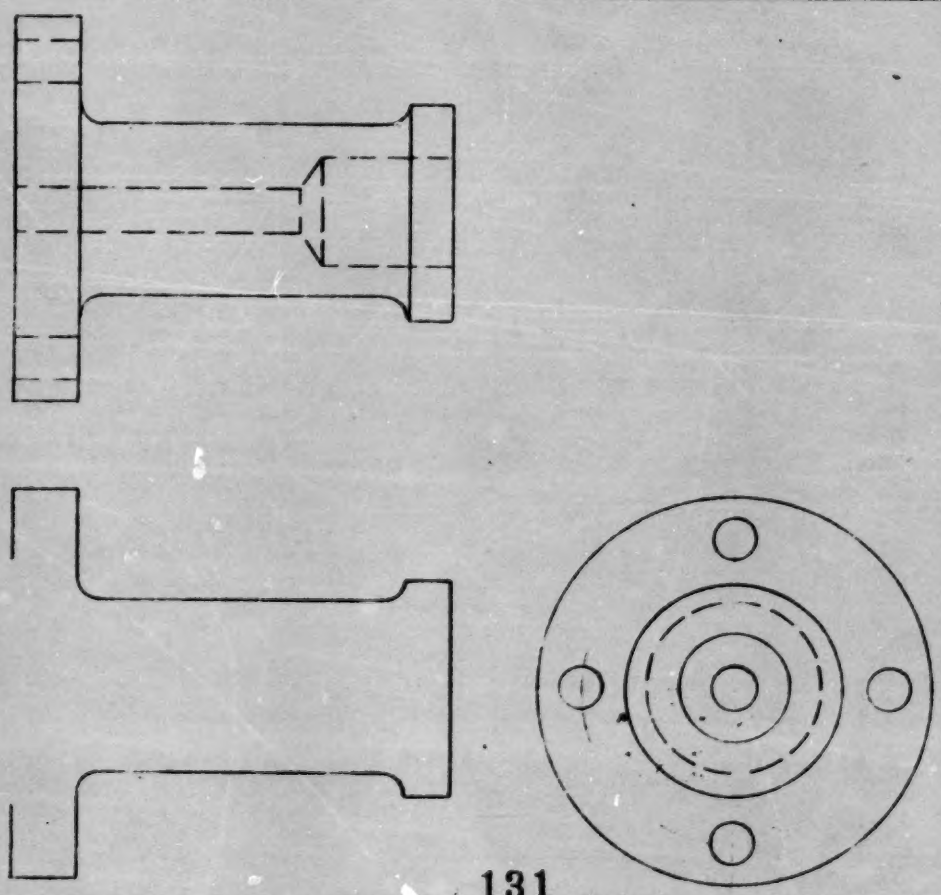
CAST IRON

MARBLE

WORK SHEET - SECTIONING #2

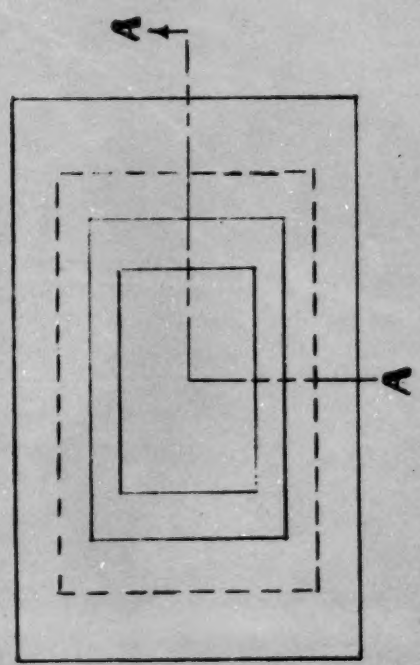
General Instructions - In both problems of this work sheet, sketch a full section of the object in the front view. Show the cutting plane line with arrows facing the correct direction. Indicate on the sectioned view that the object at the top of the work sheet is made of steel, and the object on the bottom is made of cast iron.

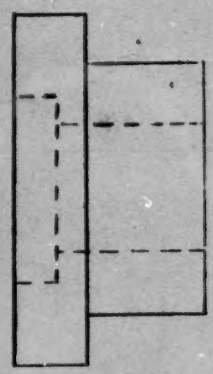




WORK SHEET - SECTIONING #3

General Instructions - In the front view of this drawing sketch a half section of the base plate. The drawing should be turned to a horizontal position. Show in the section that the base plate is made of plastic.





SECTION A-A

TECHNICAL COMMUNICATIONS MECHANICS

TOY TRAIN PROBLEM

You are a toy designer for a large toy firm called Play-Ever, Inc. Your company specializes in good, well made wooden toys for small children, ages 2-6. Your assignment is to design a toy train to be built by your firm. It is to be made of maple and birch. Each car will have a rectangular base of maple with the following dimensions: 3/4" thick, 4" wide, and 8" long. The wheels will be 1½" in diameter. (Four wheels per car.) No car will be any higher from the floor than 4 3/4". Each car will have a screw hook on one end and a screw eye on the other so the cars may be hooked together. The cars should be constructed so that no small parts could be removed and swallowed by small children. All corners should be rounded off, and all parts sanded smooth.

GENERAL ASSIGNMENT

One group will be responsible for each car of the train. The following assignments will be used in this problem:

Group 1 - Engine
Group 2 - Gondola
Group 3 - Box Car
Group 4 - Tanker or Coal Car
Group 5 - Caboose

I. Recording the Idea

A. Each person in the group should sketch a three view drawing of the car he is assigned to design.

B. By use of "brainstorming" group discussions, each group will determine the best design or take ideas from several individuals to incorporate them into one good design.

C. With grid paper each person will make a freehand scaled three view drawing of the same car and dimension it.

II. Developing the Idea

A. The designers in each group will work to make a full scale mock-up of the car from styrofoam.

B. From this scaled mock-up the designers should be able to determine if any design changes need to be undertaken.

III. Imaging the Developed Idea

A. On a "B" size sheet of tracing paper each designer will determine a suitable scale and make a working drawing (three view) of the car. These working drawings should give complete information so that the craftsman could reproduce this car without any questions as to size, materials, etc. Both detail and assembly drawings should be drawn.

B. Besides the three view drawing, the working drawing should also show two sections, one through the complete width of the car.

C. Designers will make on a size "B" sheet of tracing paper two pictorials of the car. The first shall be a cabinet oblique and the second an isometric; both on the same sheet of paper. (Paper should be in a vertical position.)

IV. Reproduction Systems

A. You will now need to make a blue line print of both of your drawings.

V. Storage and Retrieval Systems

A. You will take a picture of the best two drawings in your row with a 35 mm camera. From the processed negatives, mount the film in an aperture card for quick retrieval when the need arises. Each card should be coded for efficient retrieval.

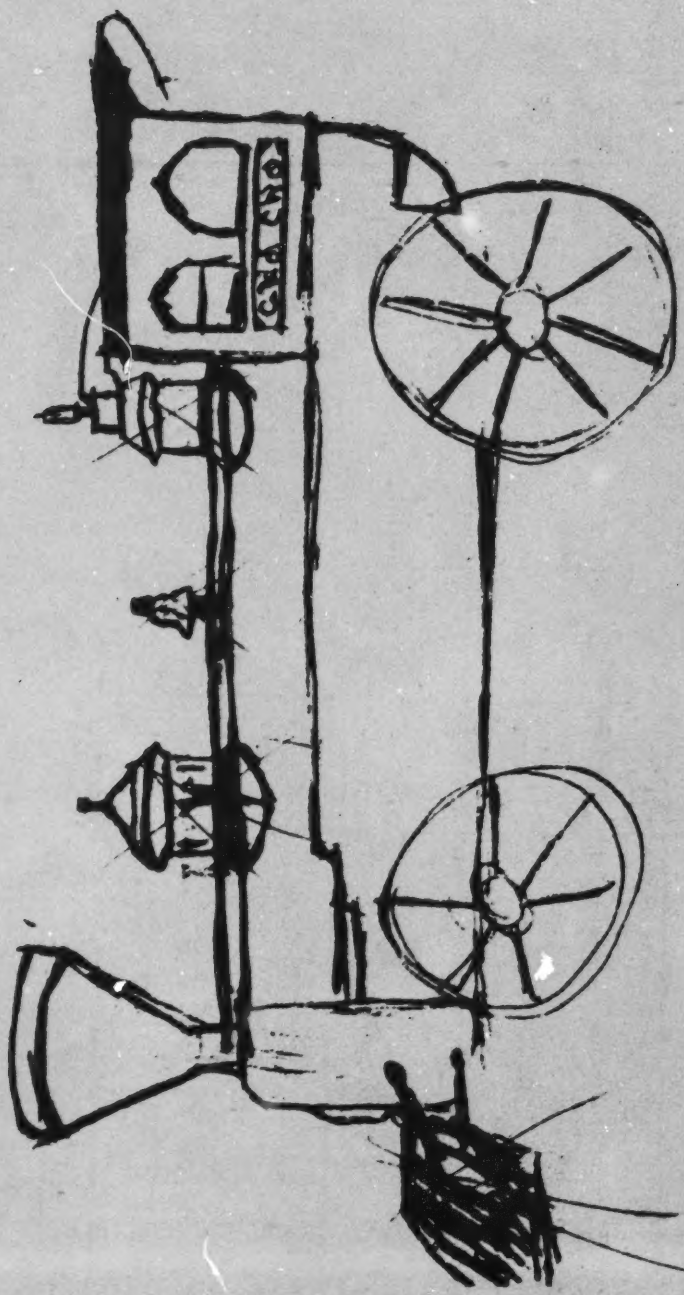
VI. Technical Writing and Illustrating

A. Designers shall make all the parts to the car in isometric drawn one-half scale. These will be cut out roughly and taped to a size "B" sheet of paper to form a cut and paste type exploded assembly drawing. This can then be traced on a good grade of tracing paper and rendered with pencil shading.

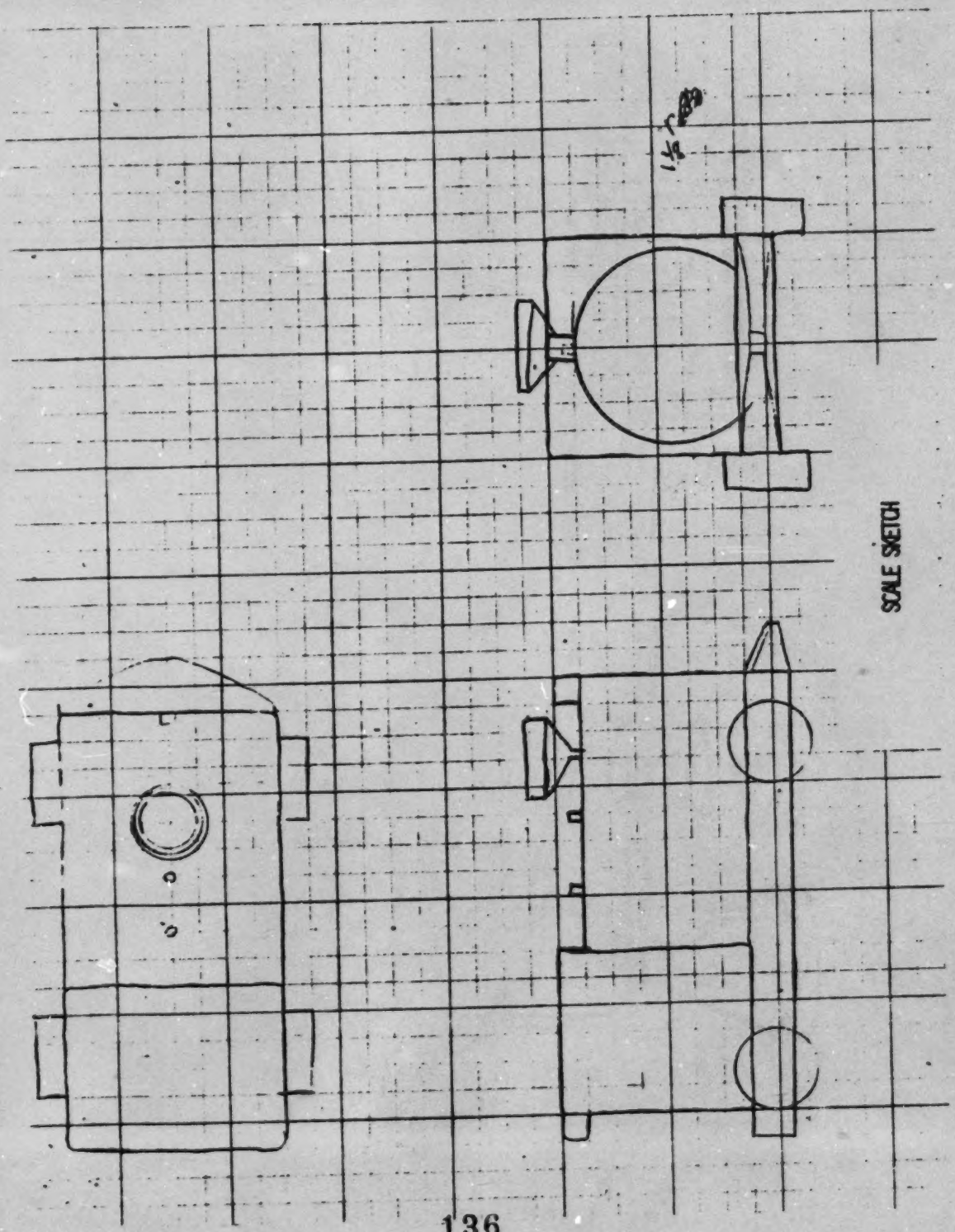
VII. Evaluation

A. You will be given a drawing test to evaluate your knowledge of the following types of drawings:

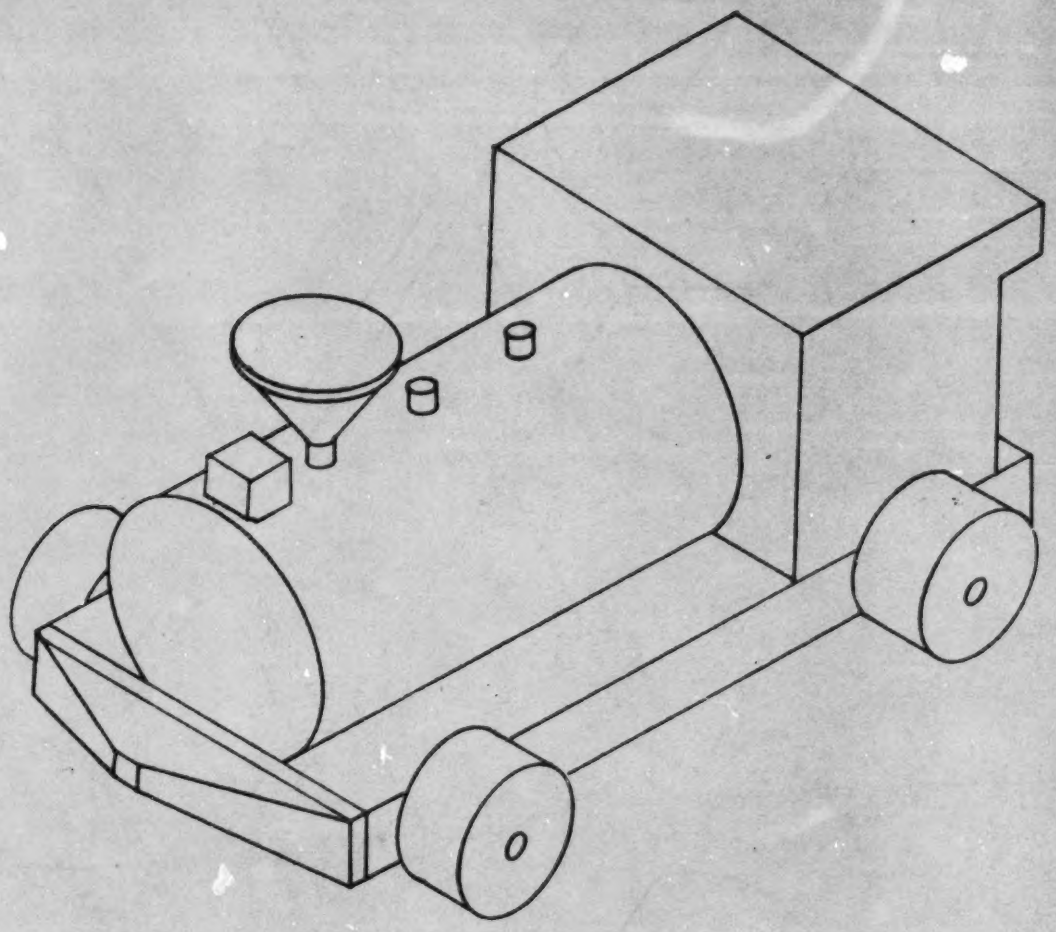
1. Cabinet oblique
2. Isometric drawing
3. Assembly drawing
4. Working drawing



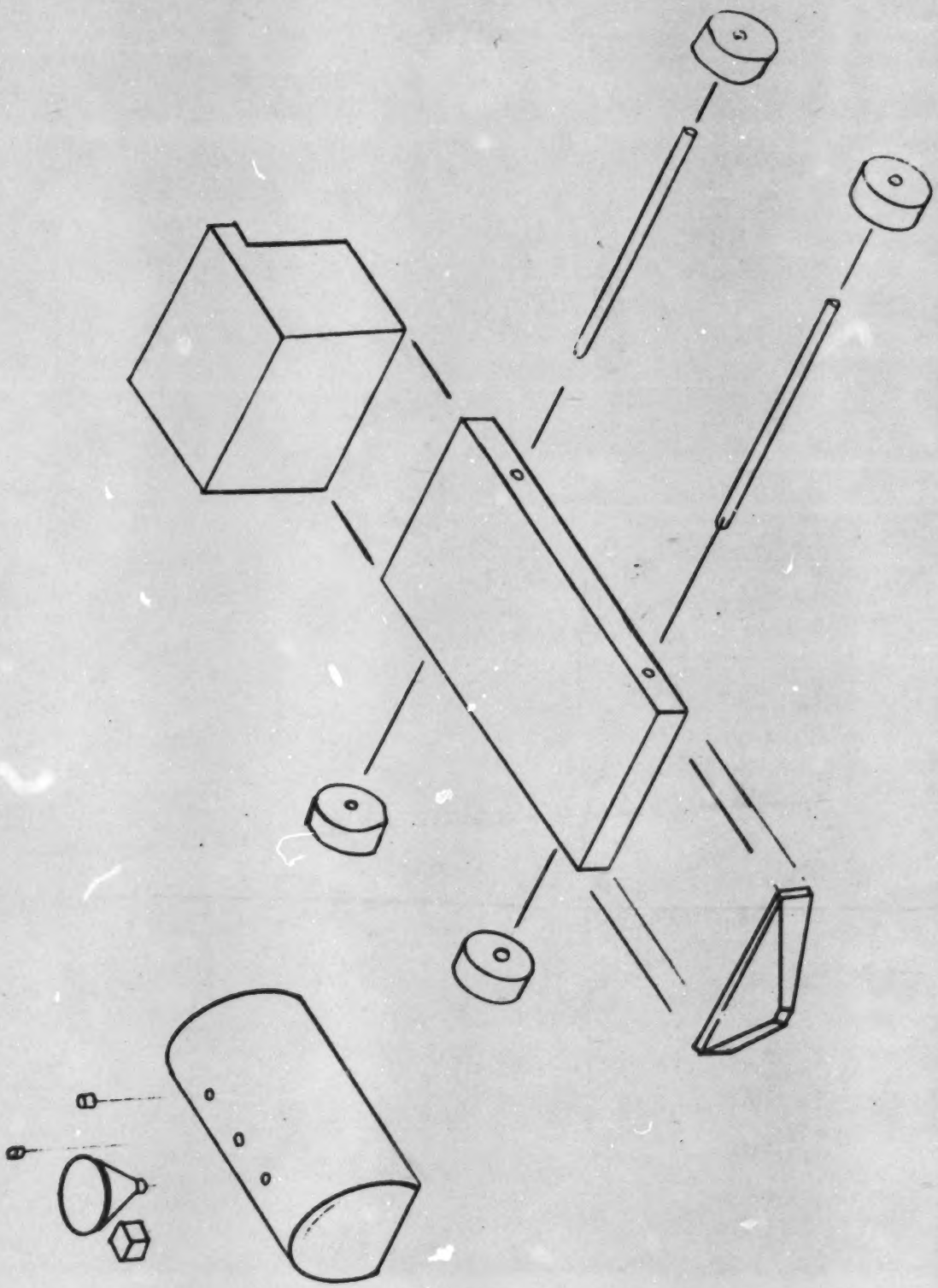
THUMBNAIL SKETCH



SCALE SKETCH

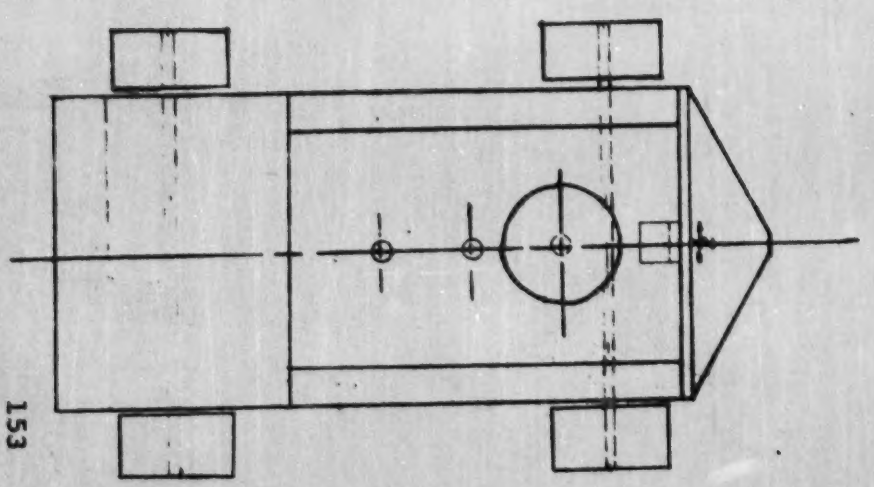


ISOMETRIC/OBLIQUE PICTORIALS

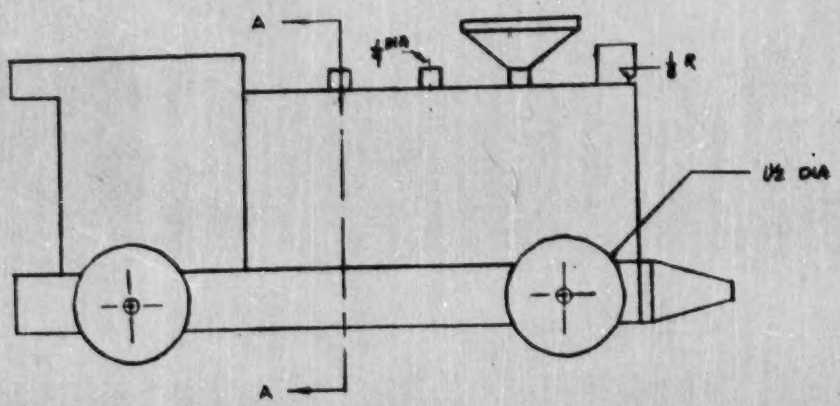


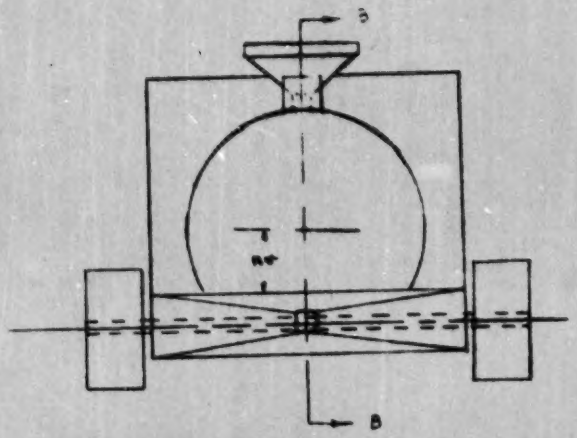
EXPLODED VIEW

NO. OF ITEM	NAME OF PART	SIZE OF PART	MATERAL USED	NO. OF PARTS
1	CAB	2¾X4X3	MAPLE	1
2	BOILER	2¾ DIA X 5	MAPLE	1
3	BASE	4X8X¾	MAPLE	1
4	WHEEL	1½ DIA X ⅜	MAPLE	4
5	AXEL	¼ DIA X 5⅞	STEEL	2
6	LIGHT	½ CUBE	MAPLE	1
7	STACK	GIVEN	MAPLE	1
8	WATER HOLE	¼ DIA.	DOWEL PIN	2
9	COW CATCHER	¾X4X1½	MAPLE	1
10	HOOK		STEEL	1

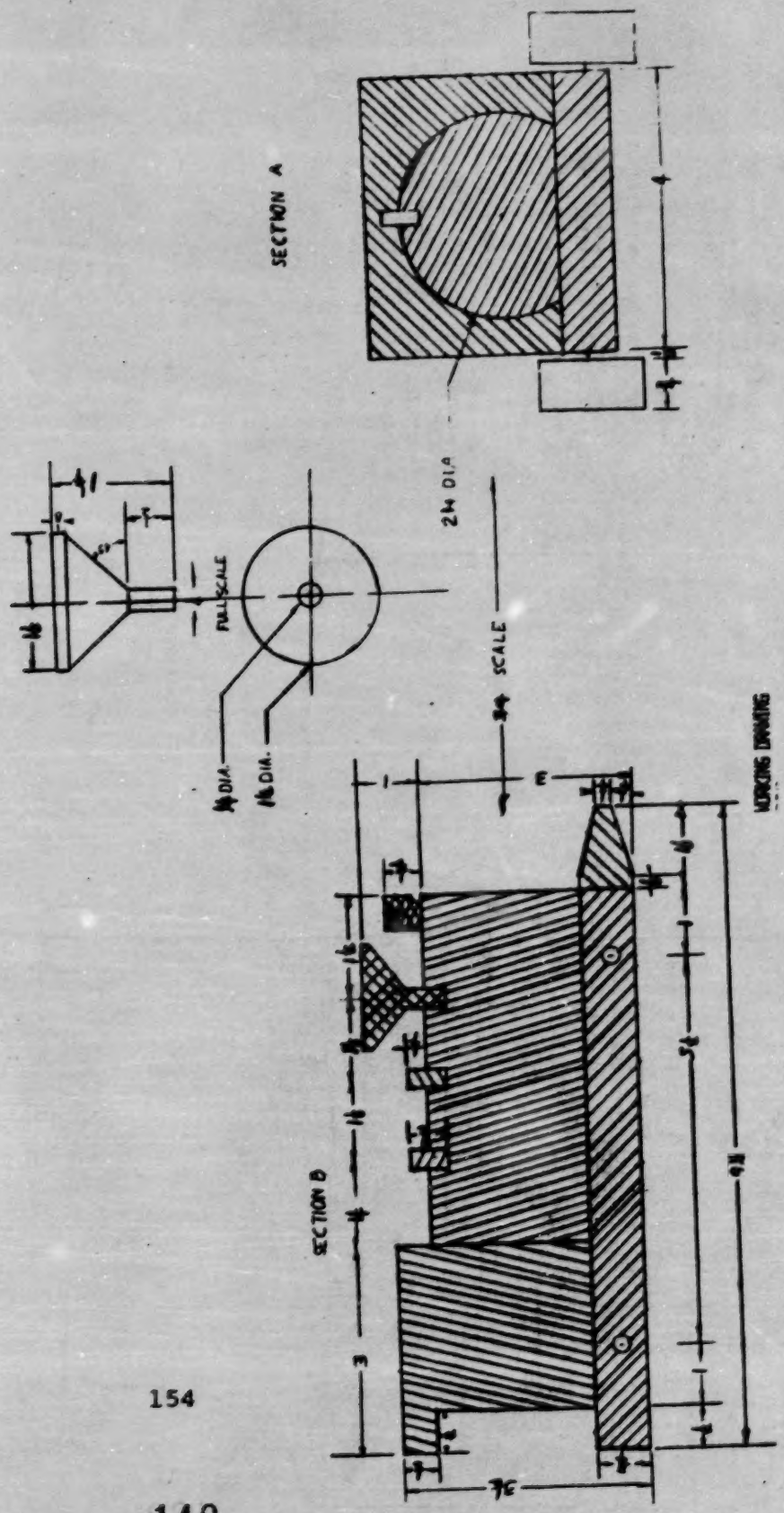


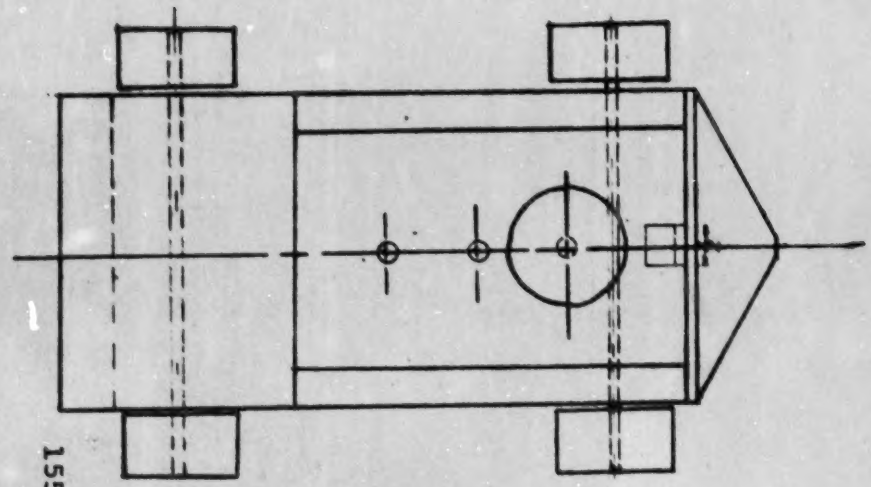
SCALE ¾=1"





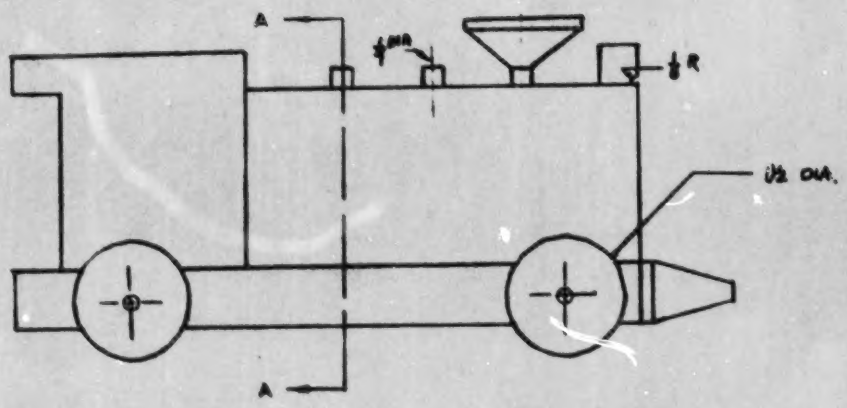
WORKING DRAWING

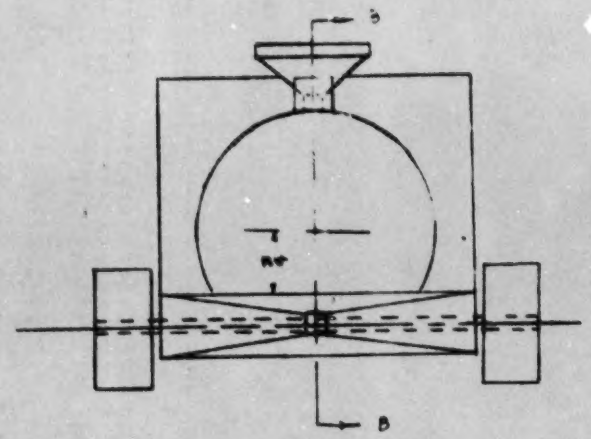

SECTION A
FULL SCALE
2¼ DIA
SCALE
SECTION B
WORKING DRAWING



NO. OF ITEM	NAME OF PART	SIZE OF PART	MATERAL USED	NO. OF PARTS
1	CAB	2¾x4x3	MAPLE	1
2	BOILER	2¾ MAX 5	MAPLE	1
3	BASE	4x8x¾	MAPLE	1
4	WHEEL	1½ DIA x ¾	MAPLE	4
5	AXEL	¼ DIA x 5⅝	STEEL	2
6	LIGHT	½ CUBE	MAPLE	1
7	STACK	GIVEN	MAPLE	1
8	WATER HOLE	⅝x¼ DIA.	DOWEL PIN	2
9	COW CATCHER	¾x4x1⅛	MAPLE	1
10	HOOK		STEEL	1

SCALE ¾=1"





BLUEPRINT

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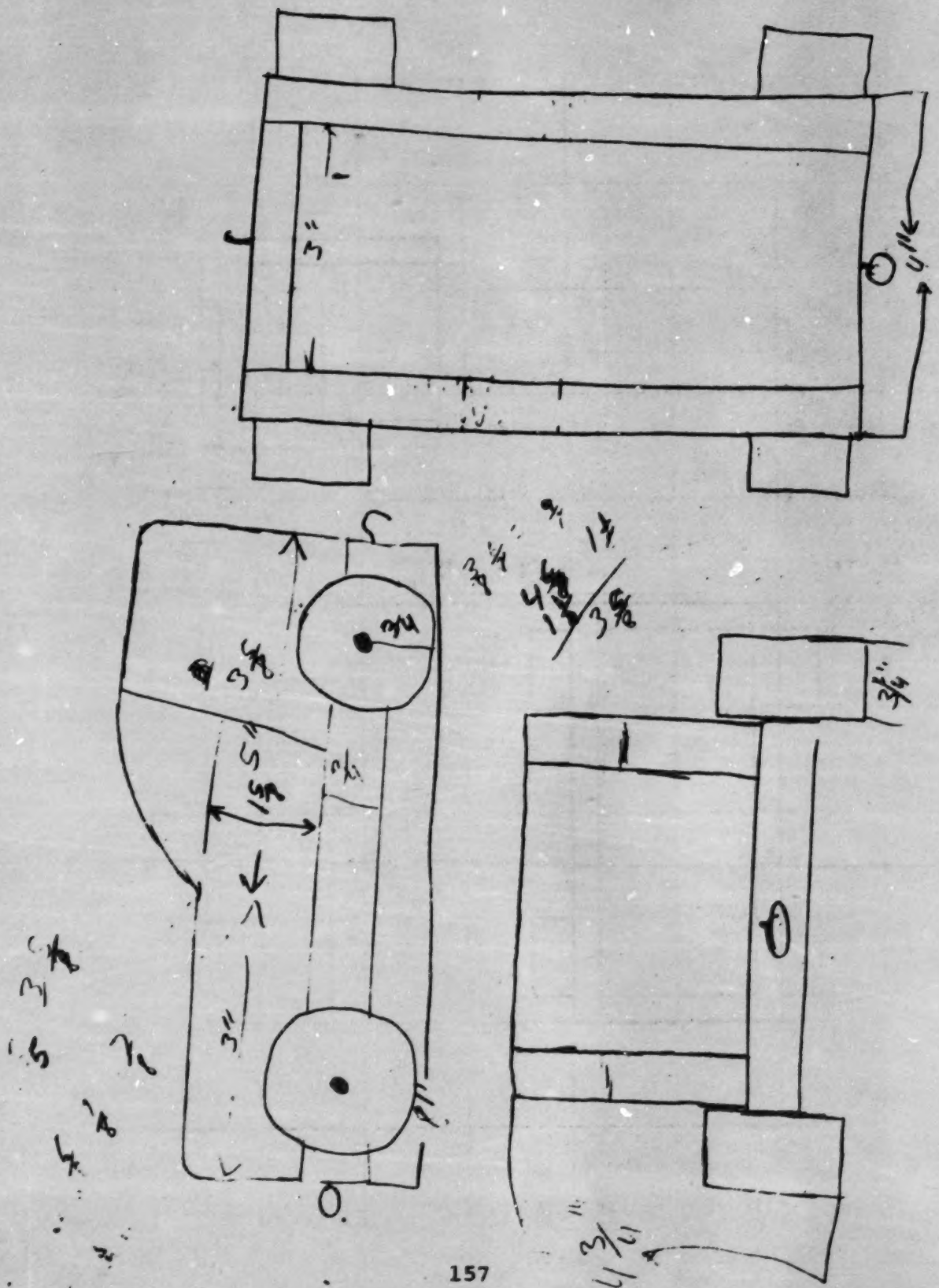
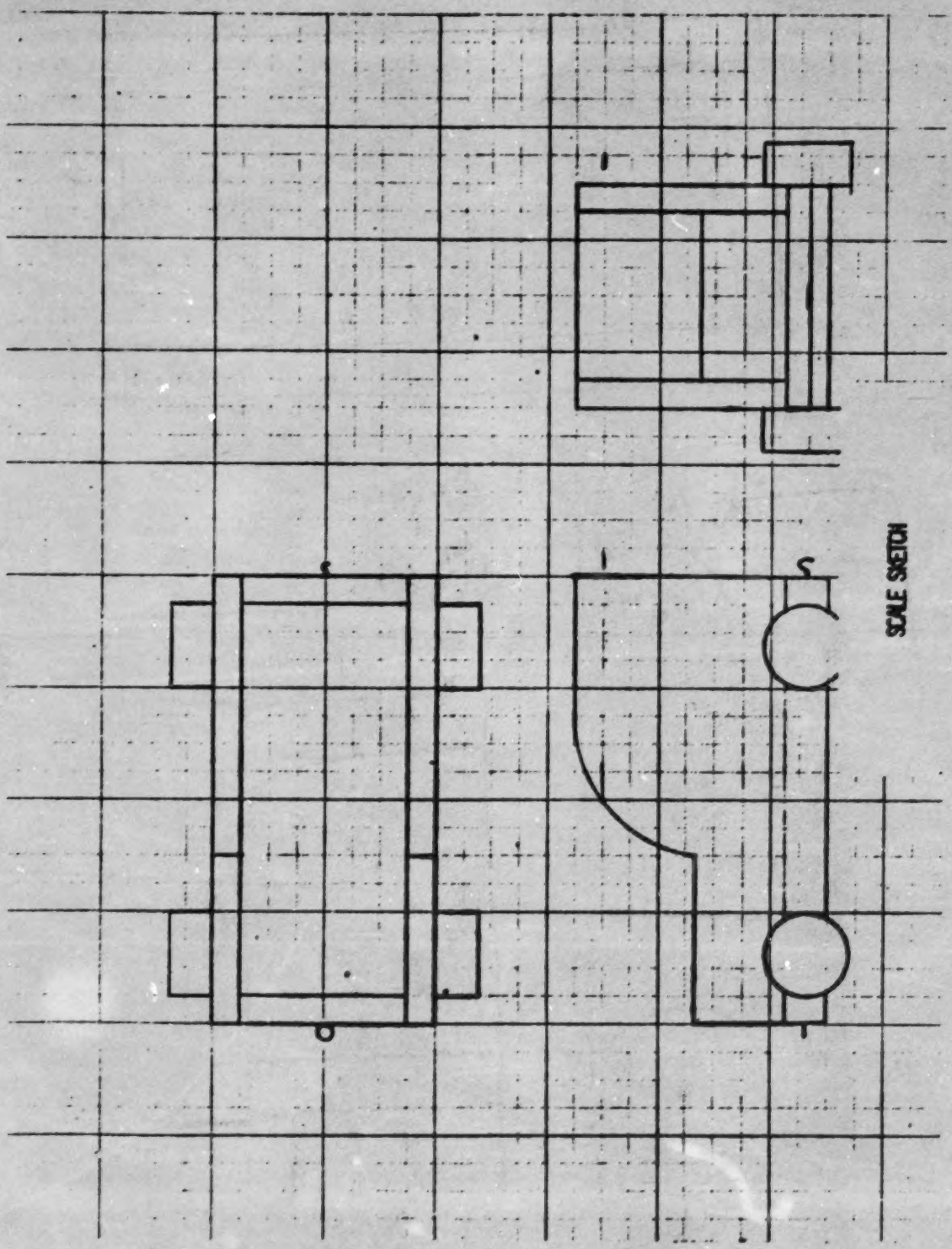
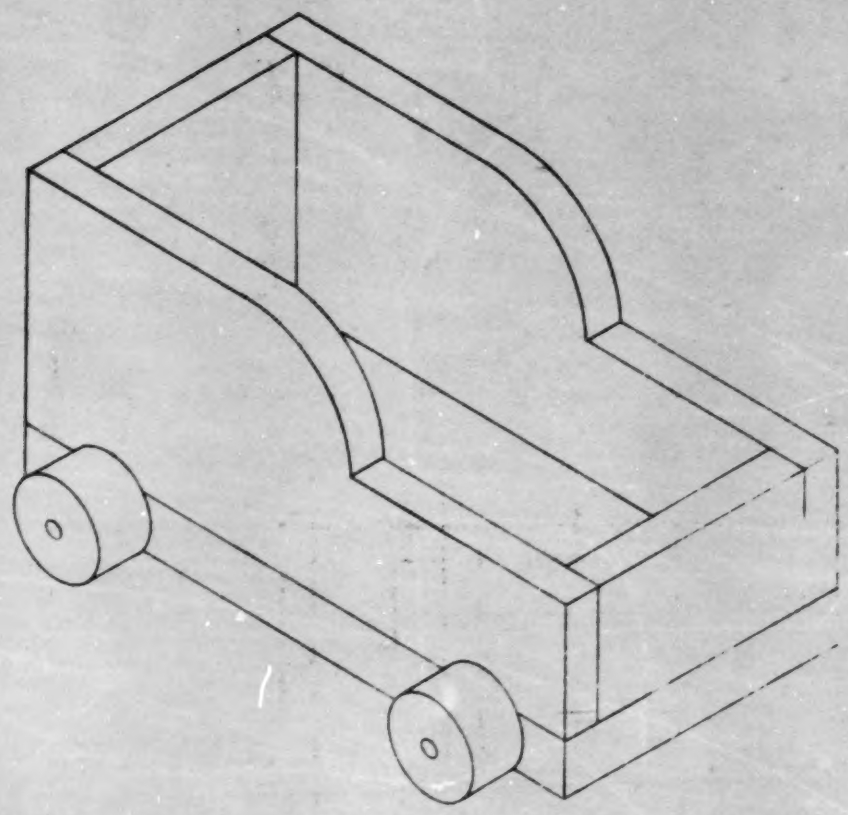
APERTURE CARD

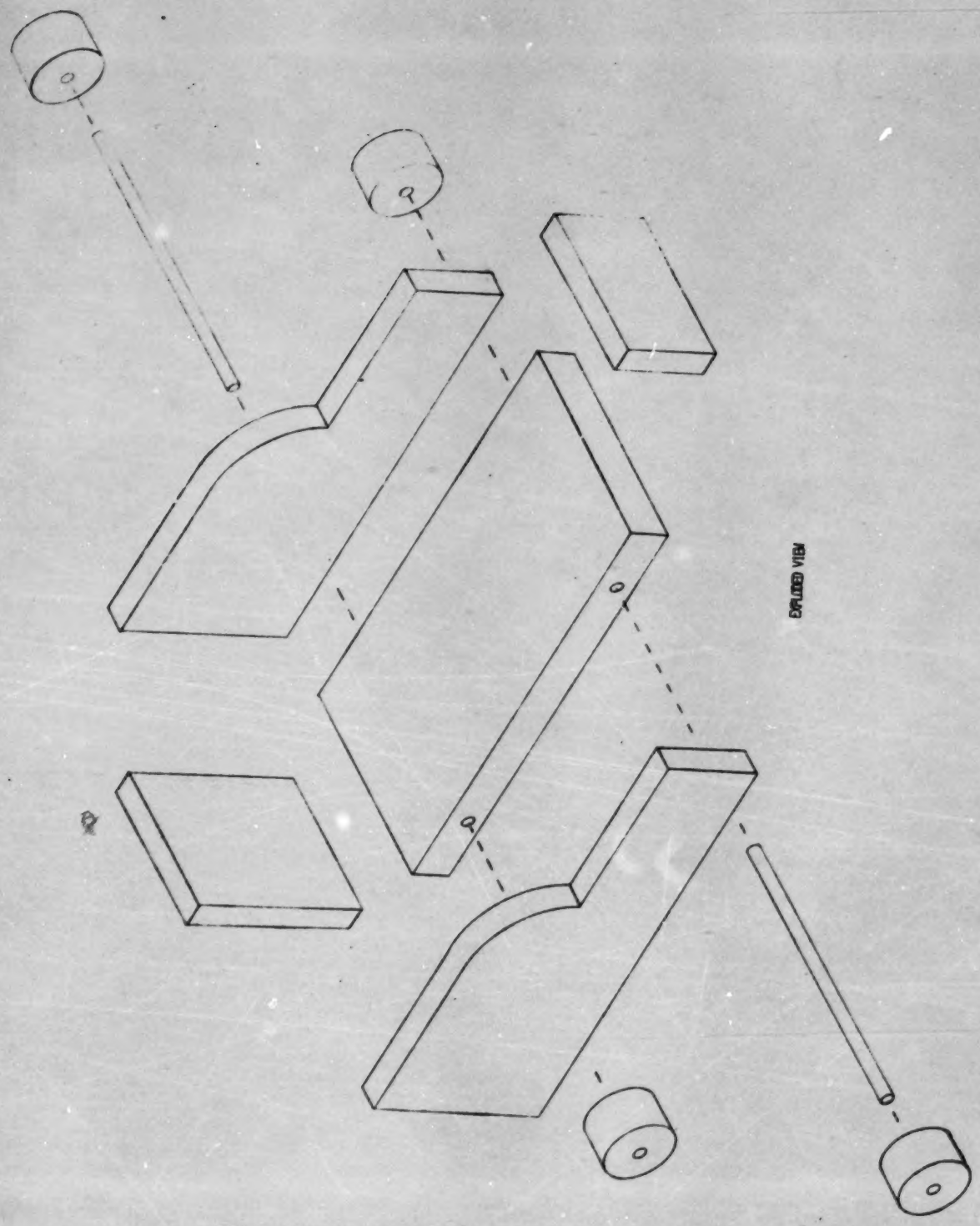


THUMBNAIL SKETCH

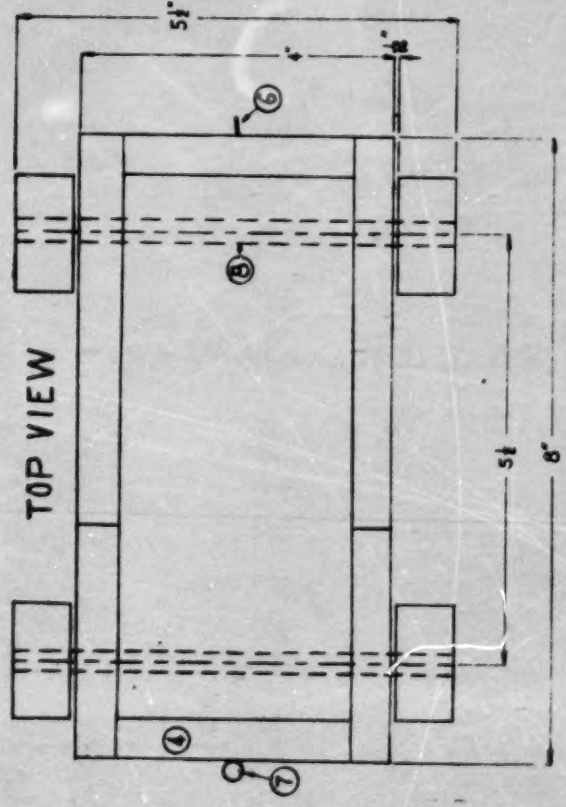

SCALE SKETCH

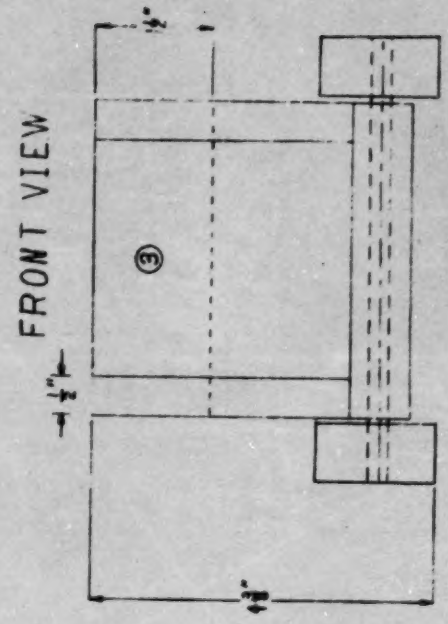


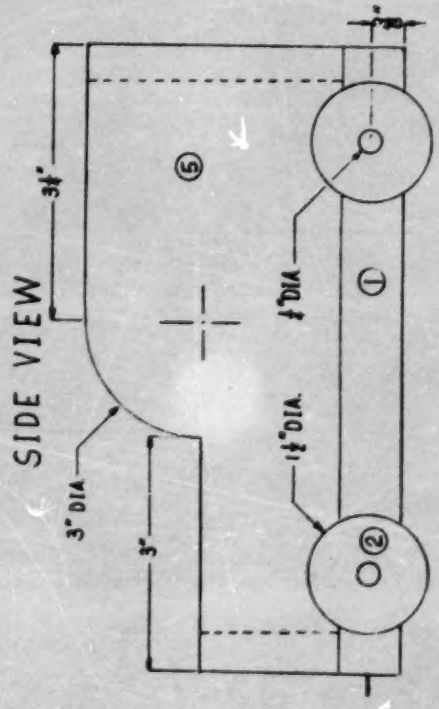
ISOMETRIC/OBLIQUE PICTORIALS


EXPLODED VIEW

PART NO.	NAME	SIZE	MATERIAL	NO OF PARTS
1	BASE	8"x4"x¾"	MAPLE	1
2	WHEELS	1½"DIA.x¾"W	MAPLE	4
3	BACK	3¼"WD.x3"L,¾"	MAPLE	1
4	FRONT	1¾"WD.x3"¾"	MAPLE	1
5	SIDE	8"x4"x¾"	MAPLE	2
6	HOOK	¾"	STEEL	1
7	SCREW EYE	¾"	STEEL	1
8	AXLE	5¾"L x ¼ DIA.	STEEL	2

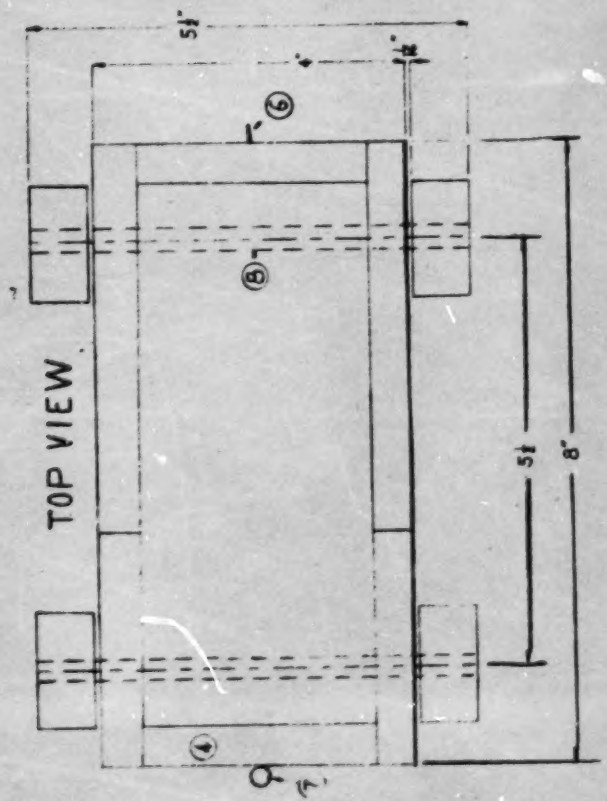


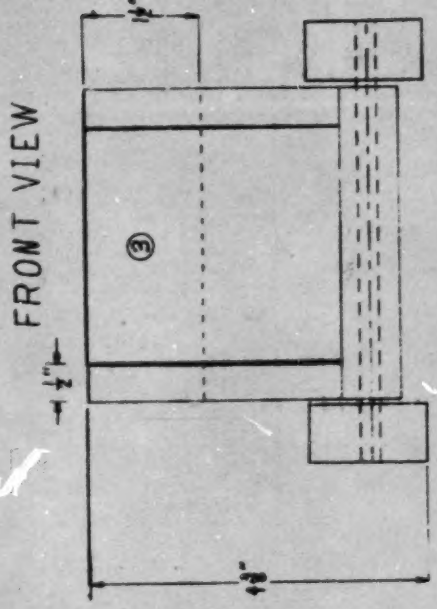


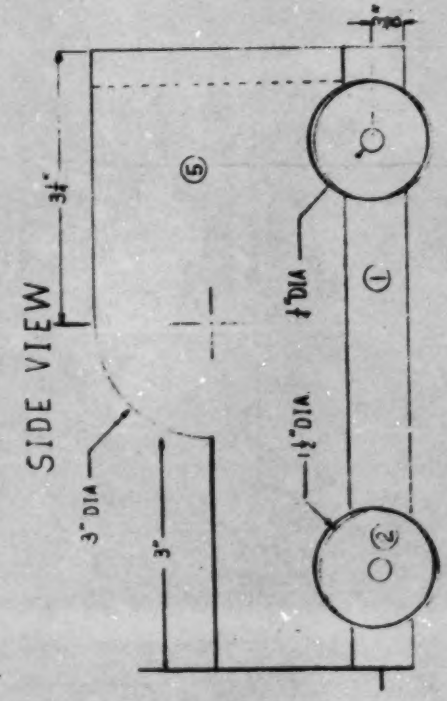


WORKING DRAWING

PART NO.	NAME	SIZE	MATERIAL	NO OF PARTS
1	BASE	8"×4"×¾"	MAPLE	1
2	WHEELS	1½"DIA.×¾"W	MAPLE	4
3	BACK	3¼"WD.×5"L×¾"	MAPLE	1
4	FRONT	1¾"WD.×3"×¾"	MAPLE	1
5	SIDE	8"×4"×¾"	MAPLE	2
6	HOOK	¼"	STEEL	1.
7	SCREW EYE	¾"	STEEL	1
8	AXLE	5½"L×¼ DIA.	STEEL	2







BLUEPRINT

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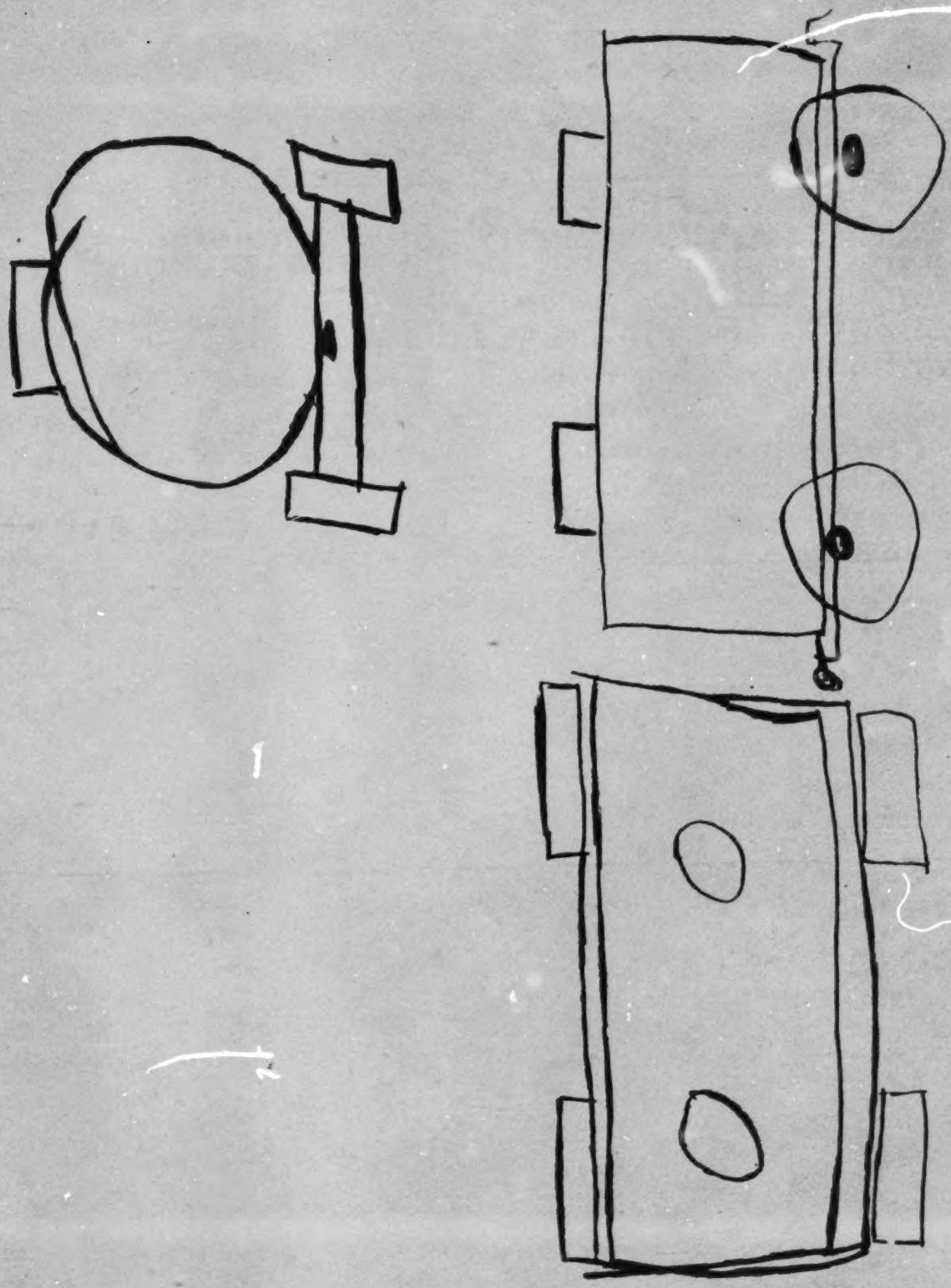
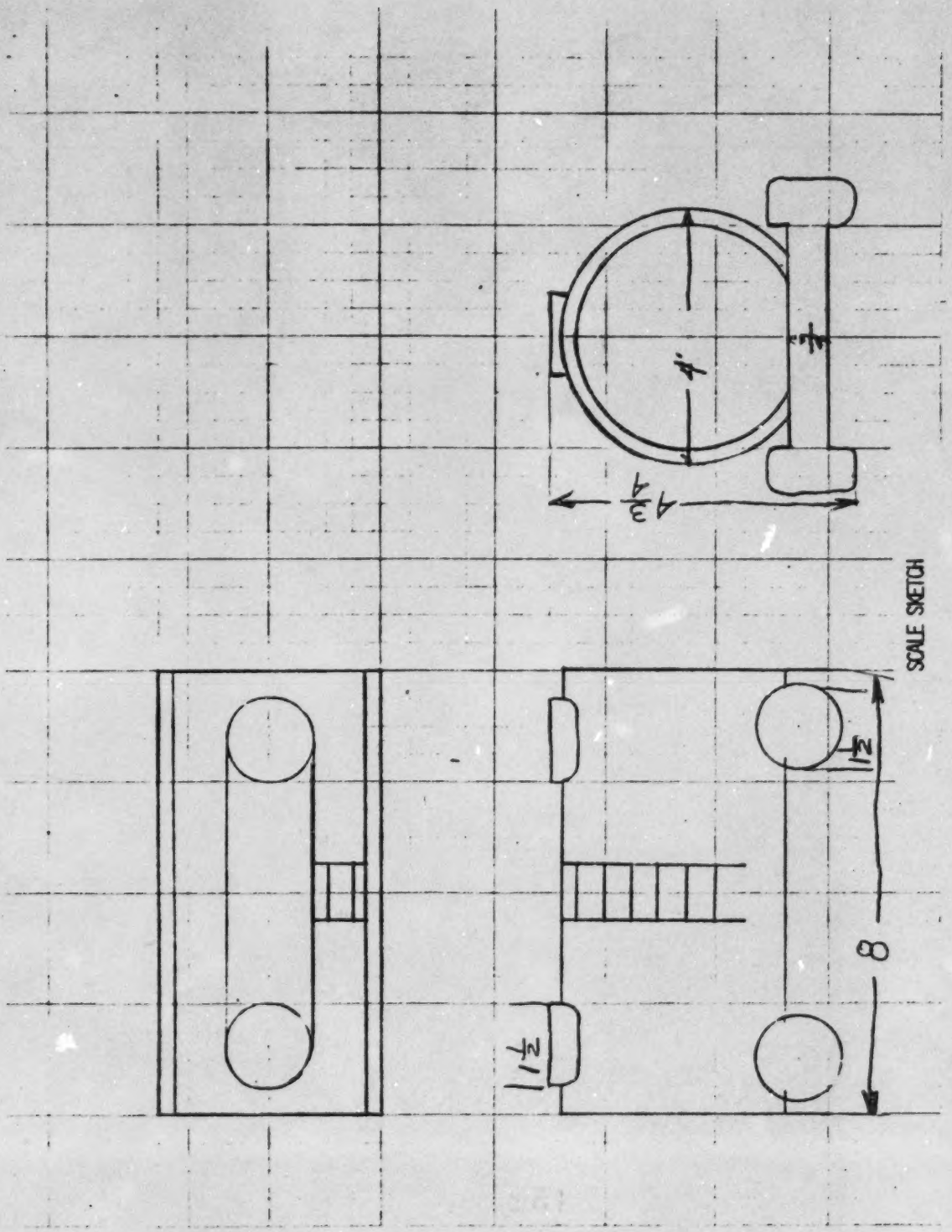
APERTURE CARD

STUDENT ACTIVITY XVI

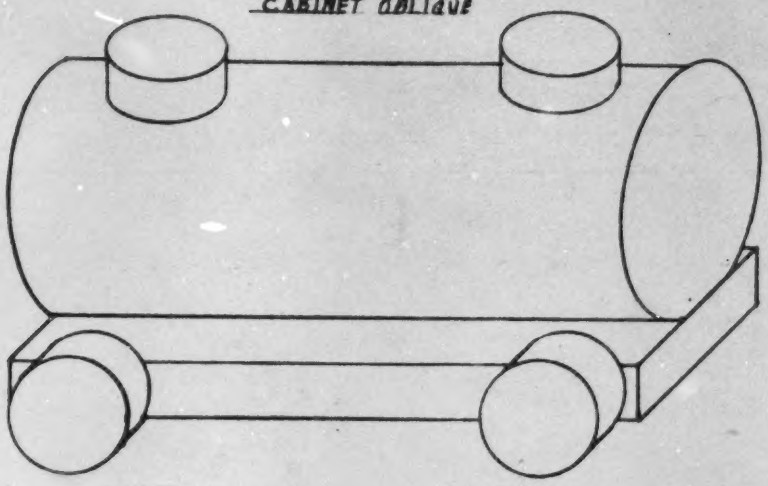


THUMBNAIL SKETCH

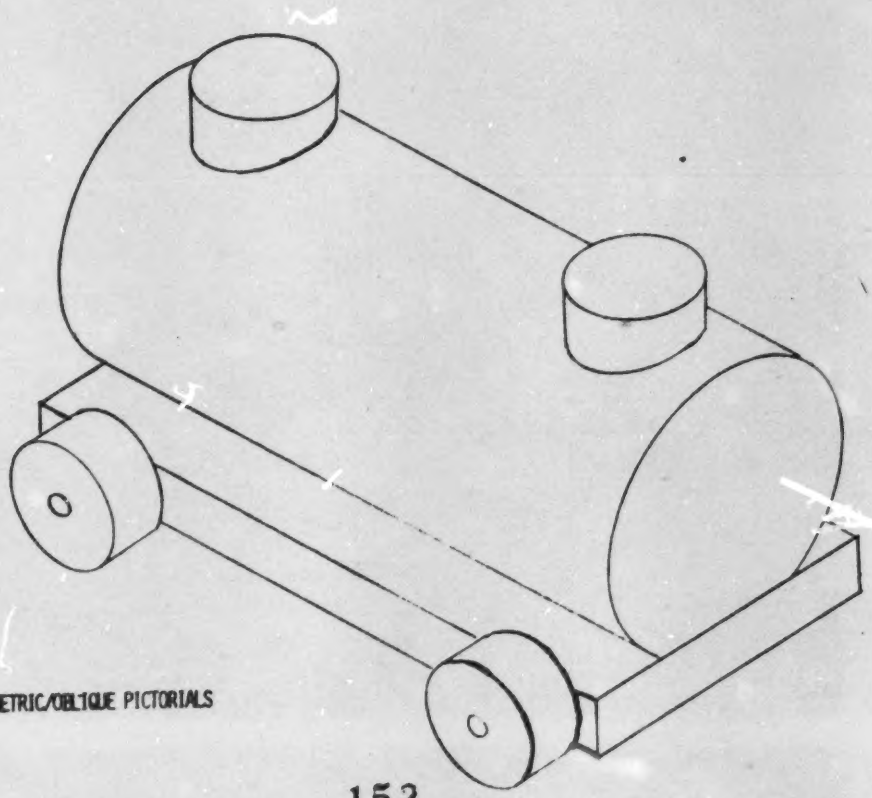


SCALE SKETCH

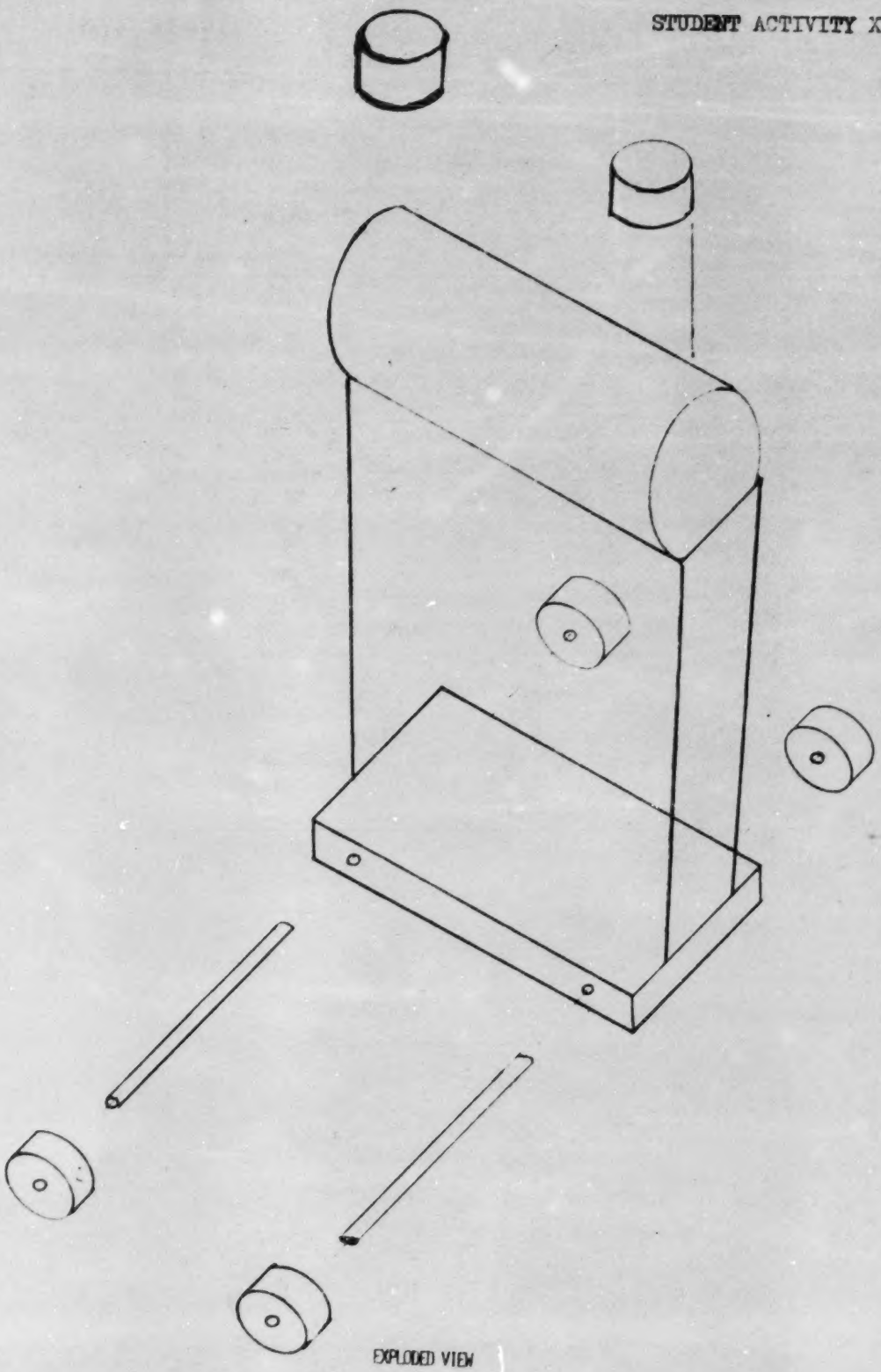
CABINET OBLIQUE



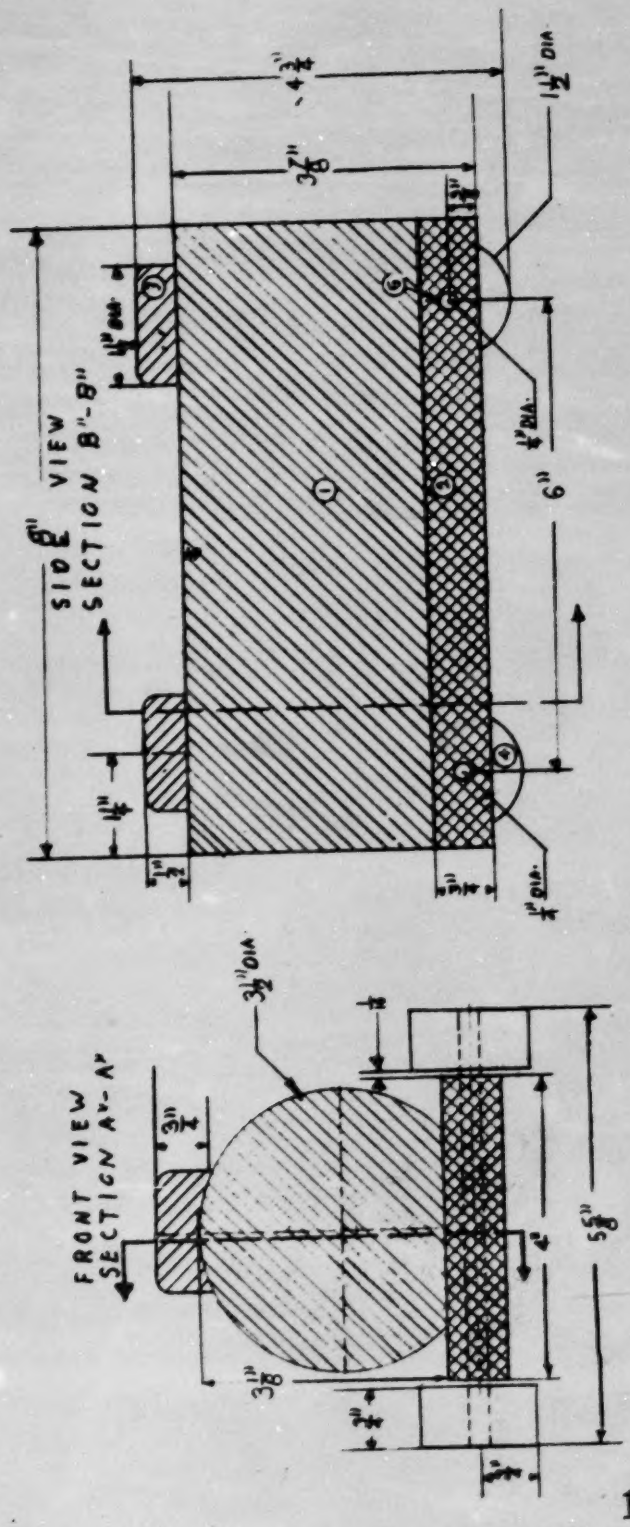
ISOMETRIC



ISOMETRIC/OBLIQUE PICTORIALS

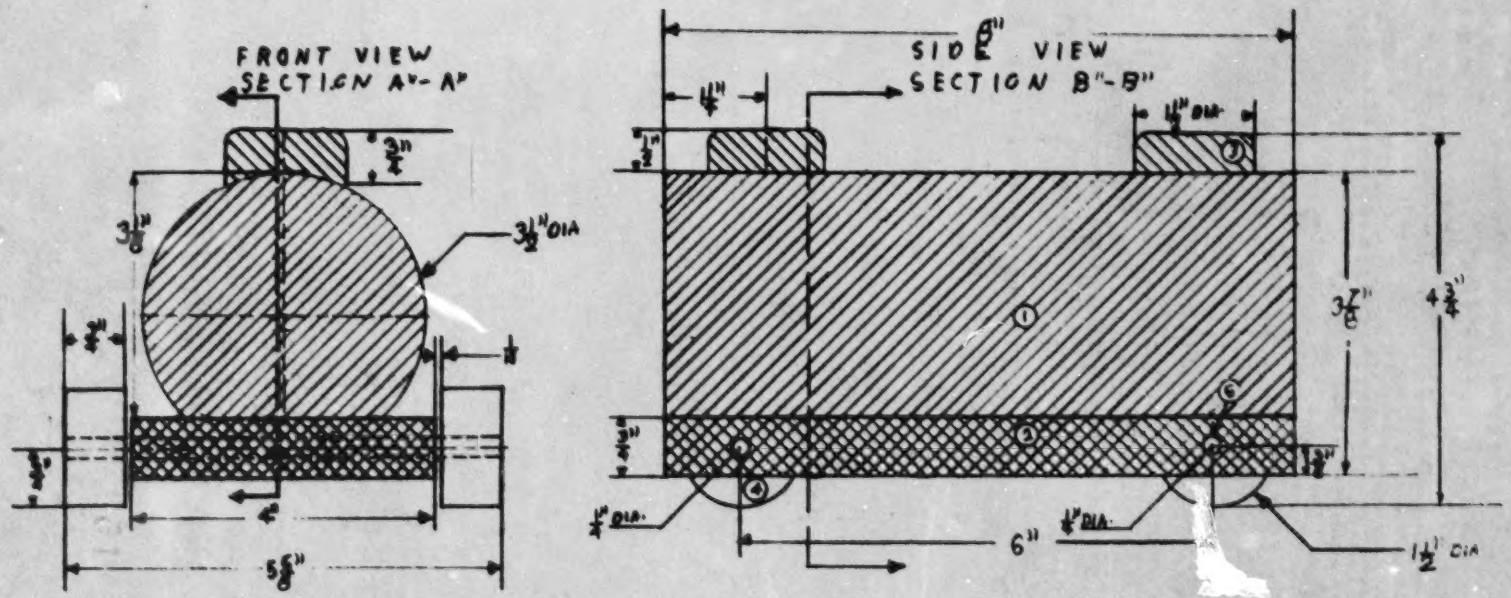


EXPLODED VIEW



PART NO.	NAME	SIZE	MATERIAL	NO OF ITEMS
1	CYLINDER	3 1/8" x 3 1/2" DIA x 8"	MAPEL	1
2	BASE	3/4" x 4" x 8"	MAPEL	1
3	FILLER	3/4" x 1 1/2" DIA.	MAPEL	2
4	WHEEL	3/4" x 1 1/2" DIA.	MAPEL	4
5	AXLE	5/8" x 1" DIA	STEEL	2
6	HOOK	1/4"	STEEL	1
7	EYE	1/4"	STEEL	1

WORKING DRAWING



PART NO.	NAME	SIZE	MATERIAL	NO OF ITEMS
1	CYLINDER	3⅛" x 3½" DIA x 8"	MAPEL	1
2	BASE	¾" x 4" x 8"	MAPEL	1
3	FILLER	¾" x 1½" DIA	MAPEL	2
4	WHEEL	¾" x 1½" DIA	MAPEL	4
5	AXLE	6½" x ½" DIA	STEEL	2
6	HOOK	½"	STEEL	1
7	EYE	½"	STEEL	1

BLUEPRINT

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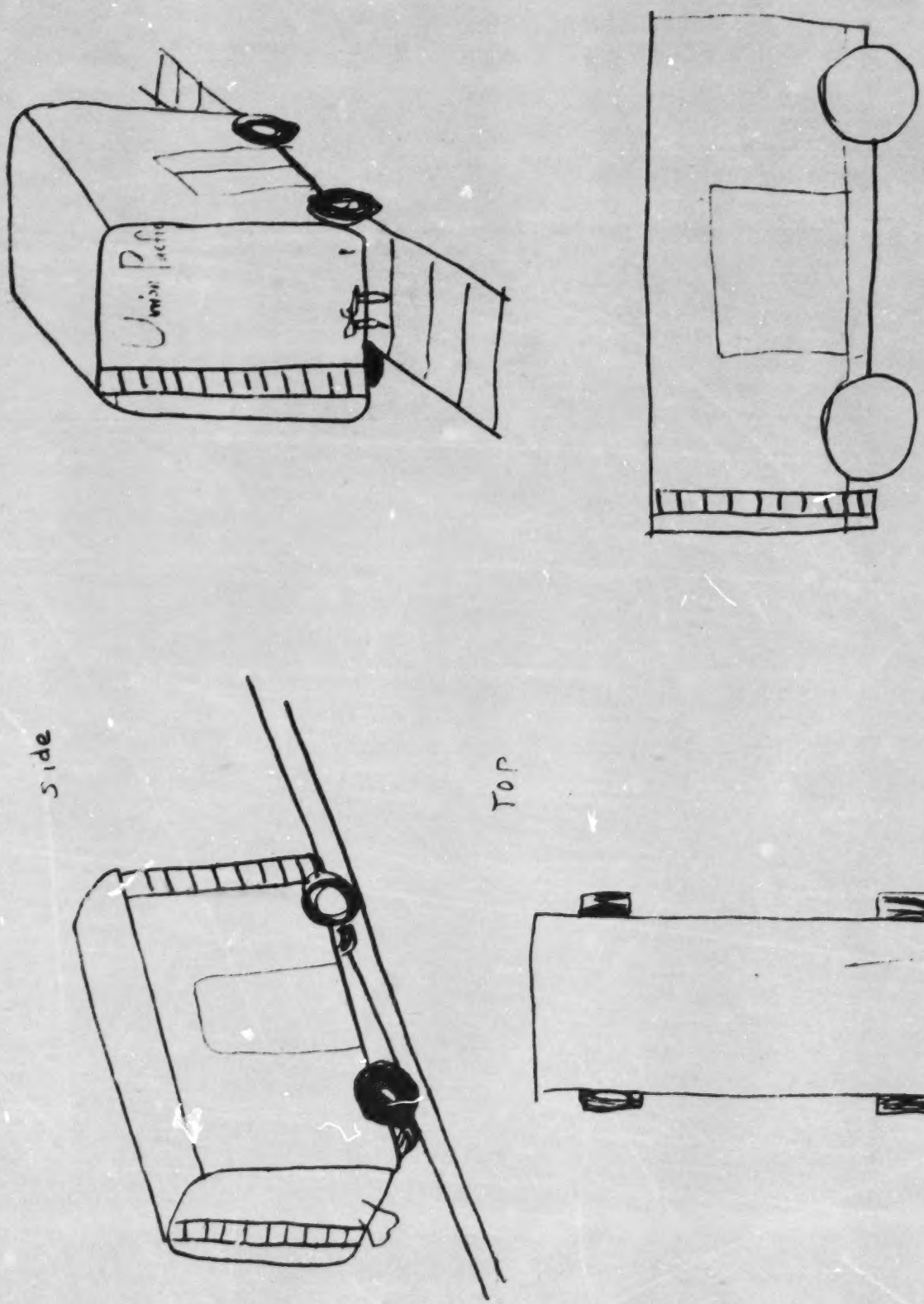
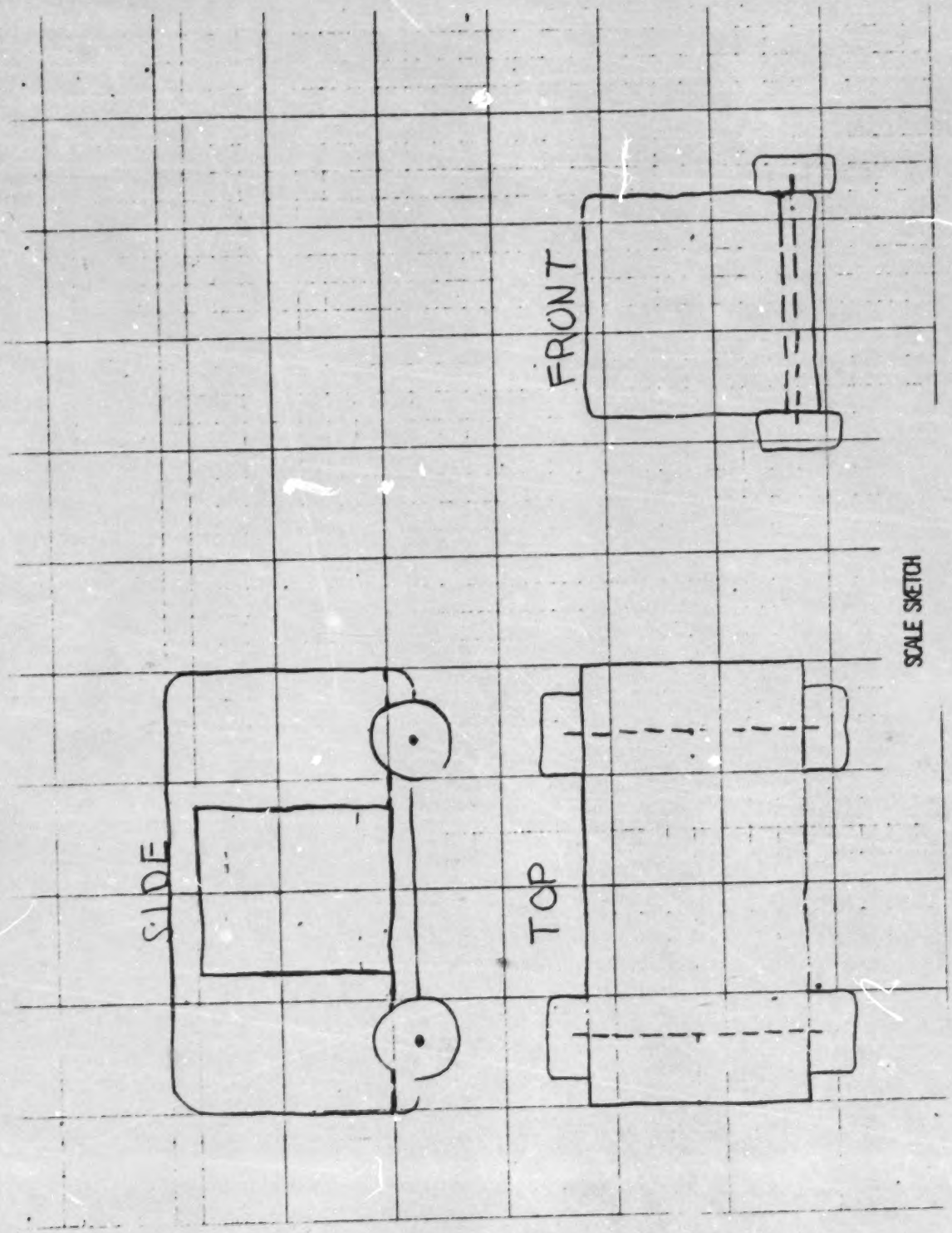
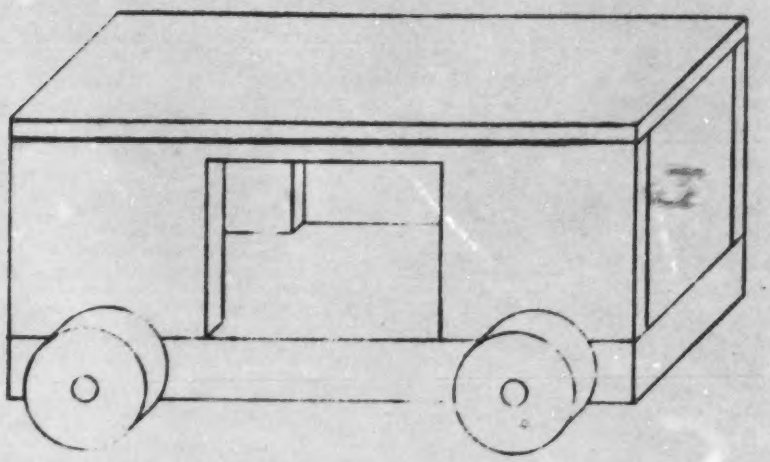
APERTURE CARD



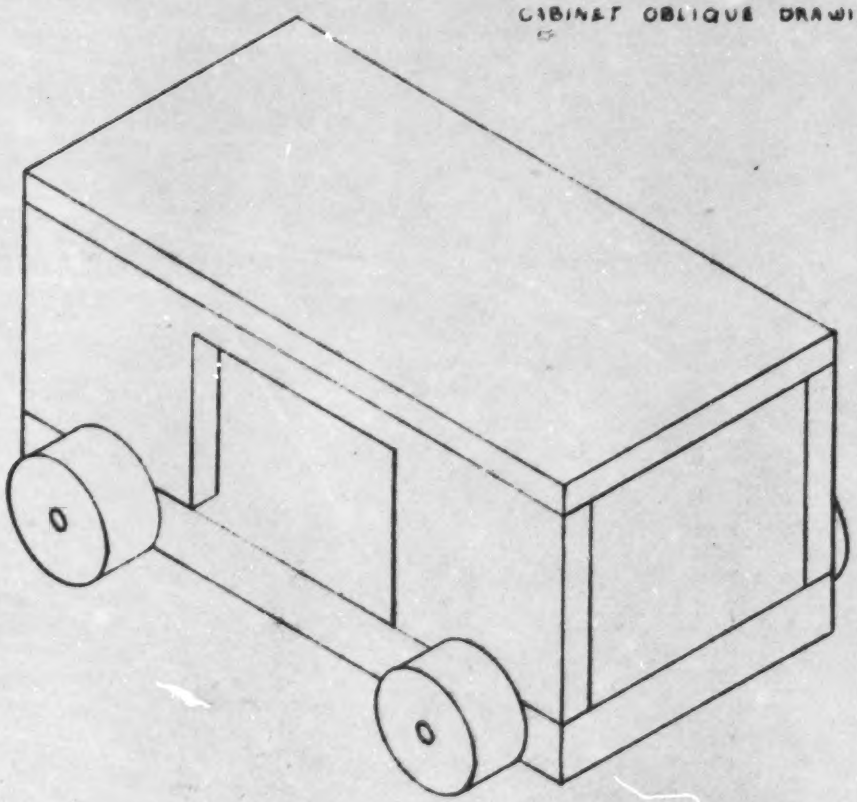
THUMBNAIL SKETCH



SCALE SKETCH

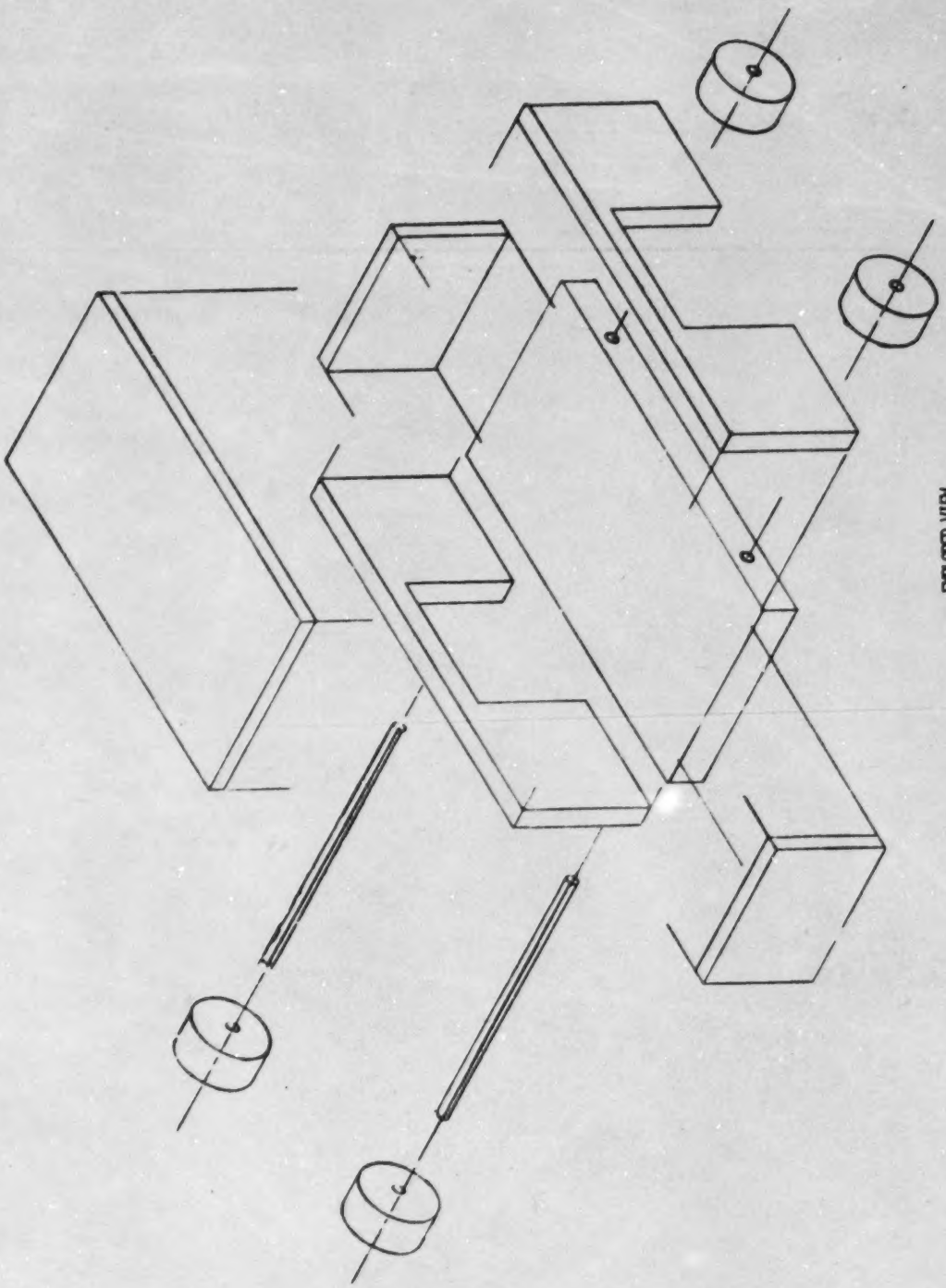


CABINET OBLIQUE DRAWING

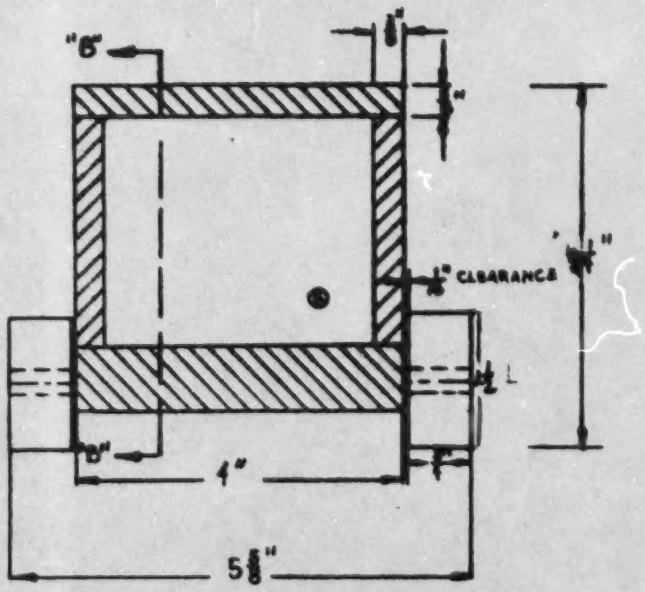


ISOMETRIC/OBLIQUE PICTORIALS

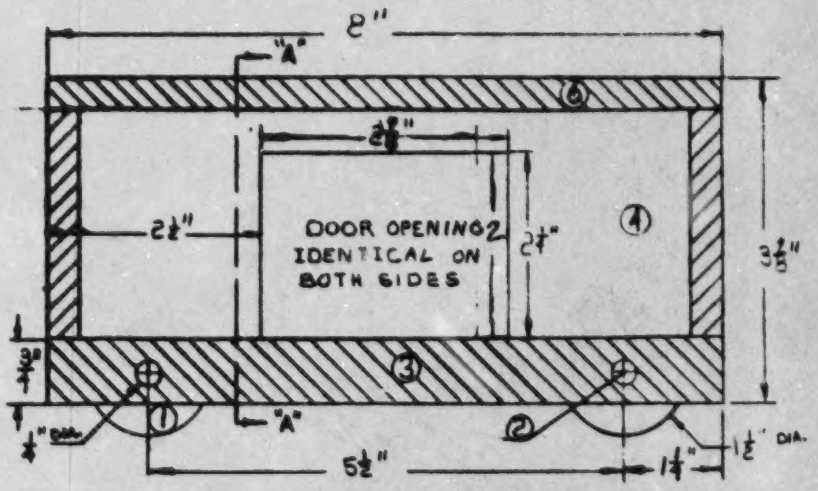
ISOMETRIC DRAWING



EXPLODED VIEW



FRONT VIEW
SECTION "A-A"

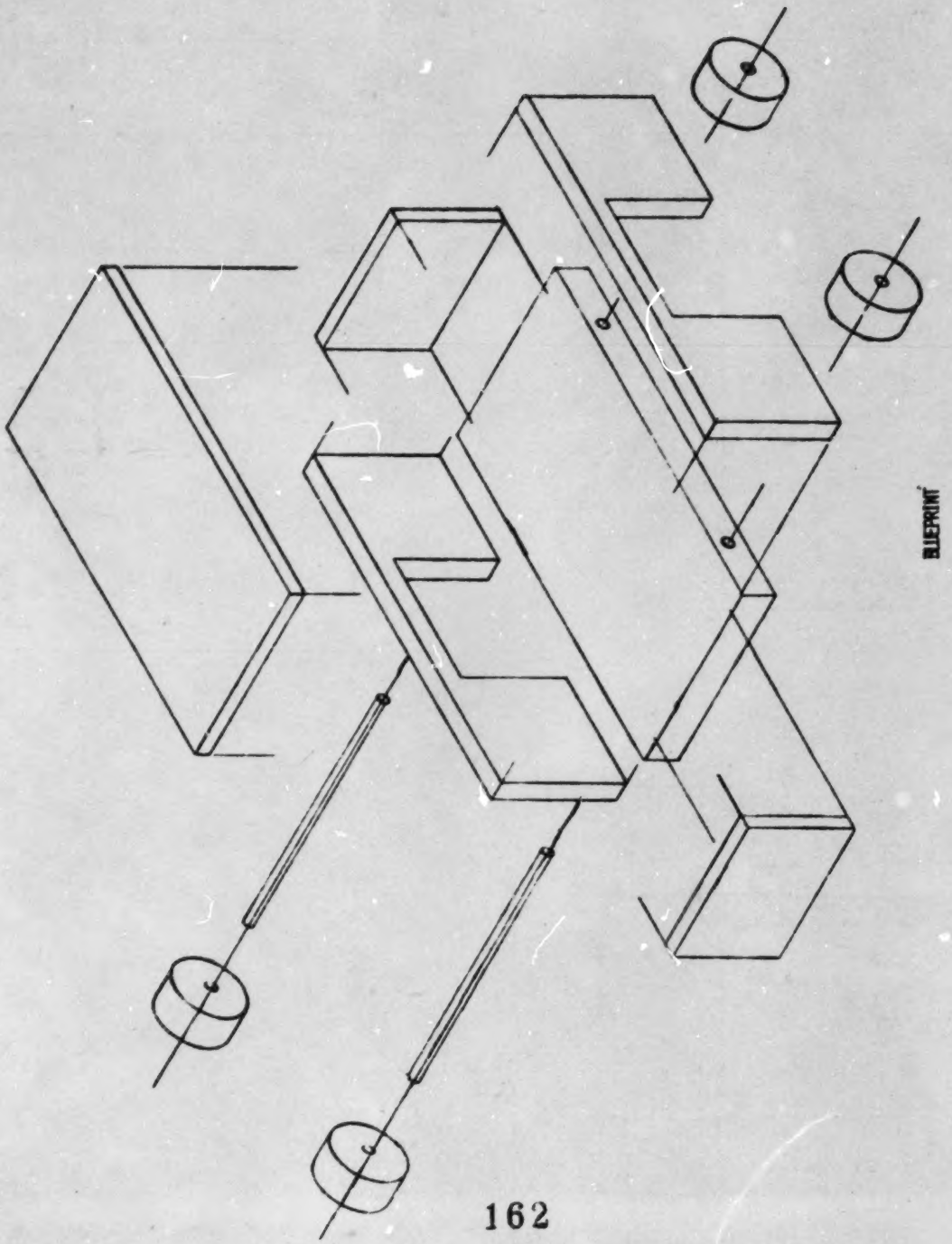


SIDE VIEW
SECTION "B-B"

PART NO.	NAME	SIZE	MATERIAL	NO. IT
1	WHEELS	3/4" x 1 1/2" DIA.	MAPLE	
2	AXLES	1/4" x 5 5/8"	STEEL ROD	
3	BASE	3/4" x 4" x 8"	MAPLE	
4	SIDES	3/8" x 2 1/4" x 8"	MAPLE	
5	ENDS	3/8" x 3 1/4" x 2 1/4"	MAPLE	
6	TOP	3/8" x 4" x 8"	MAPLE	
7	HOOK		STEEL	
8	EYE		STEEL	

WORKING DRAWING

STUDENT ACTIVITY KIT


BLUEPRINT

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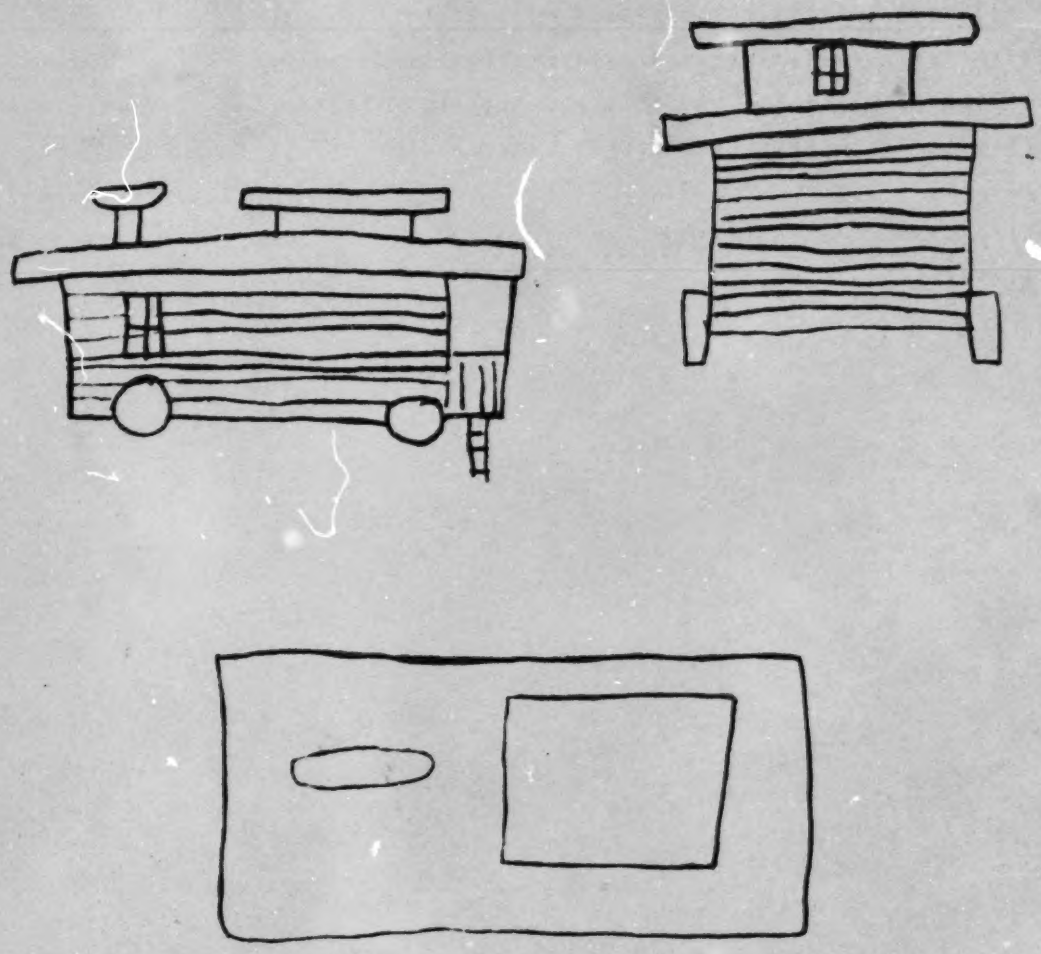
APERTURE CARD



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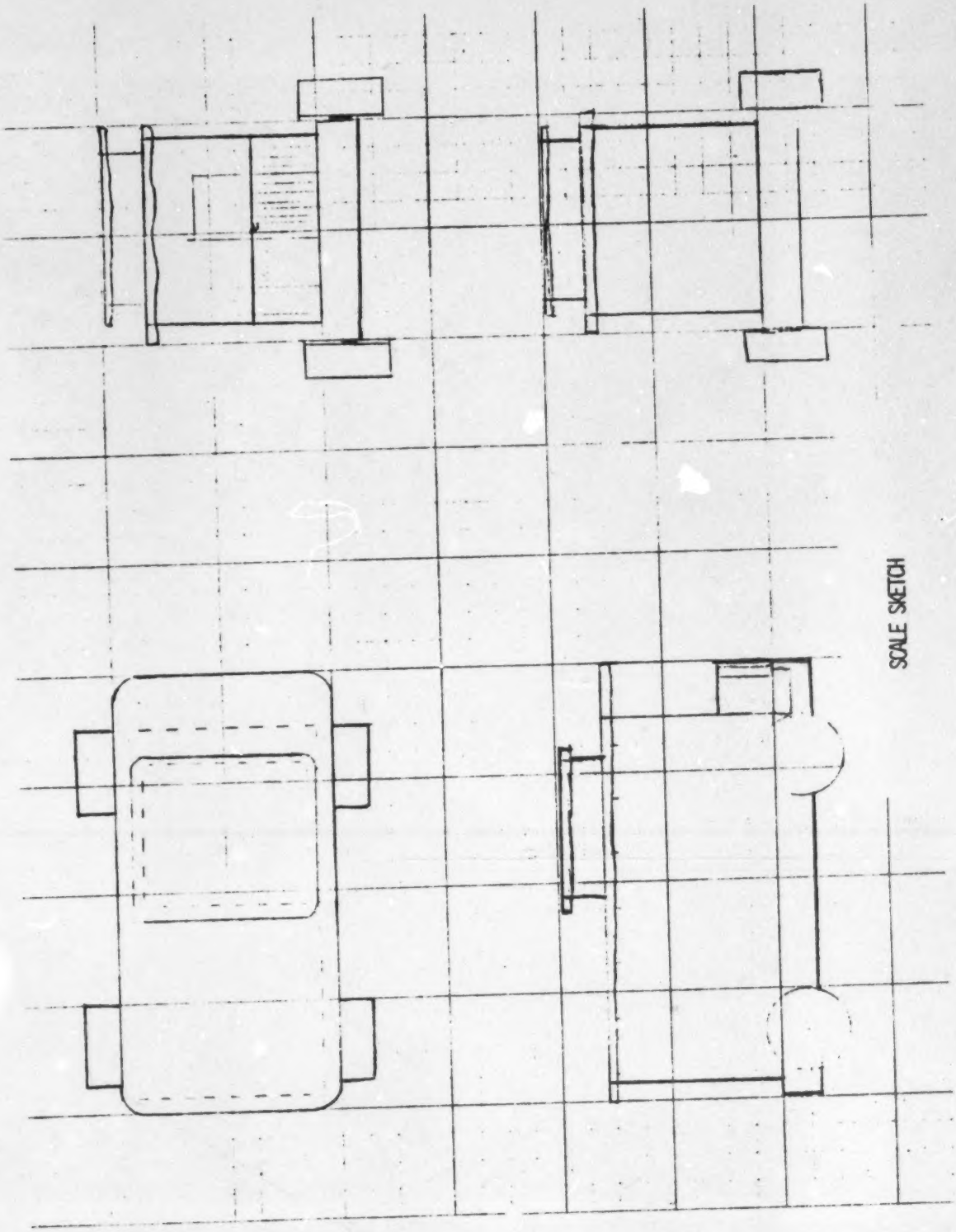
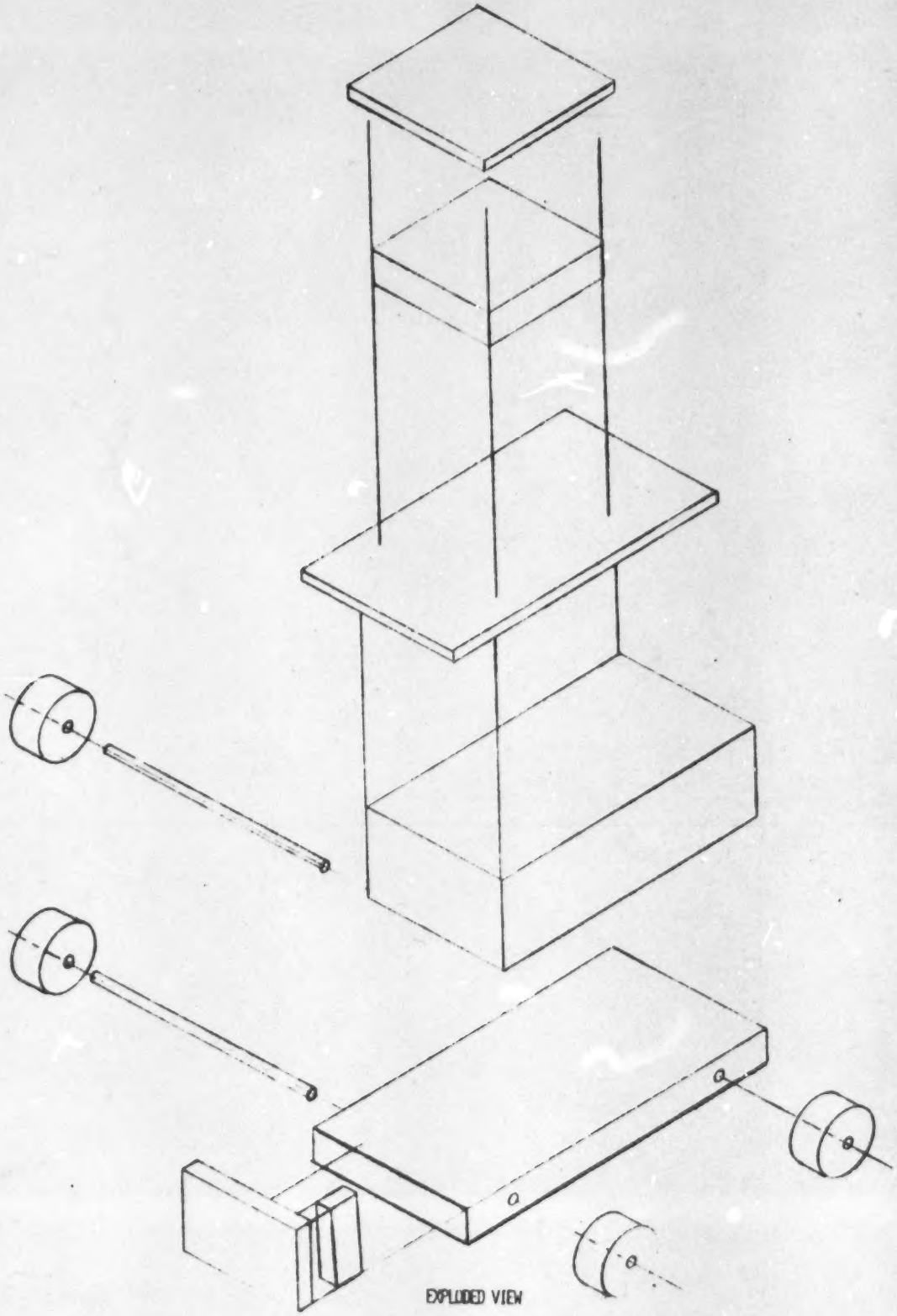
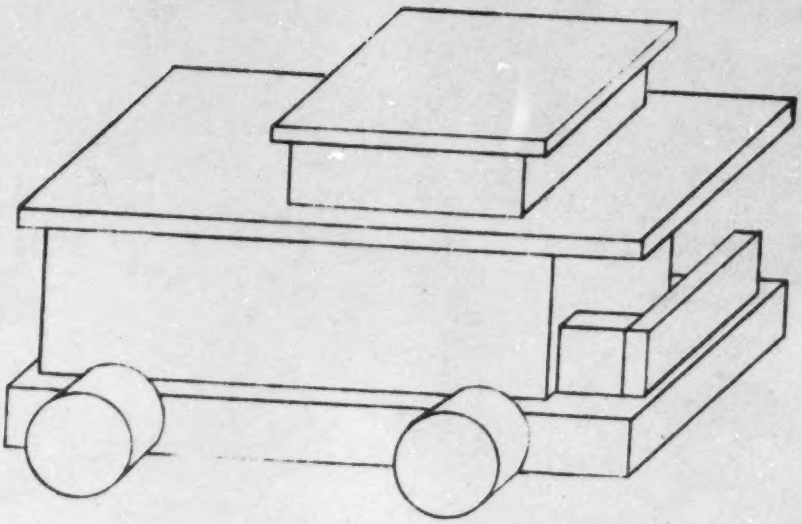
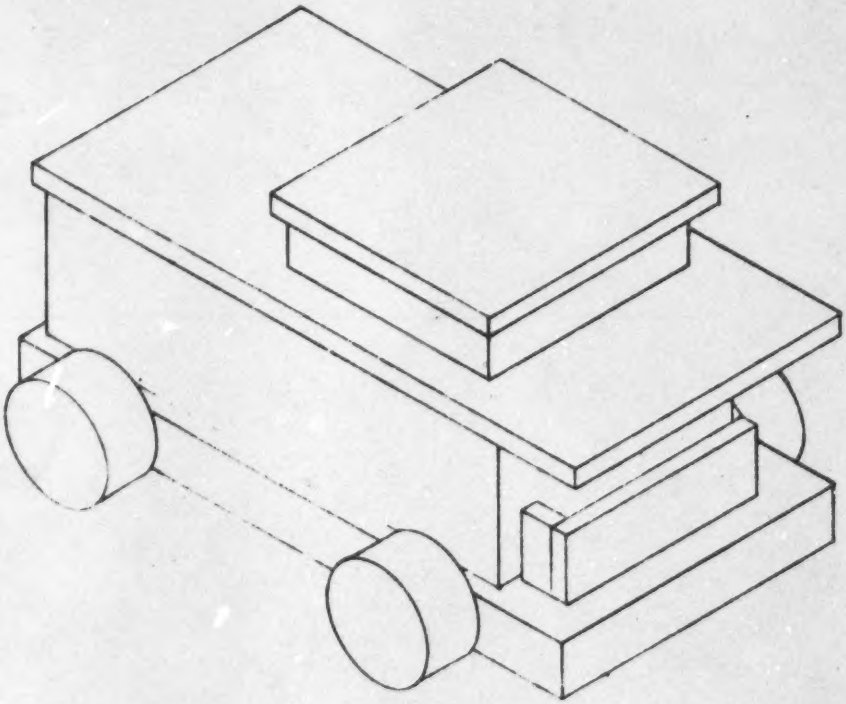
THUMBNAIL SKETCH


SCALE SKETCH



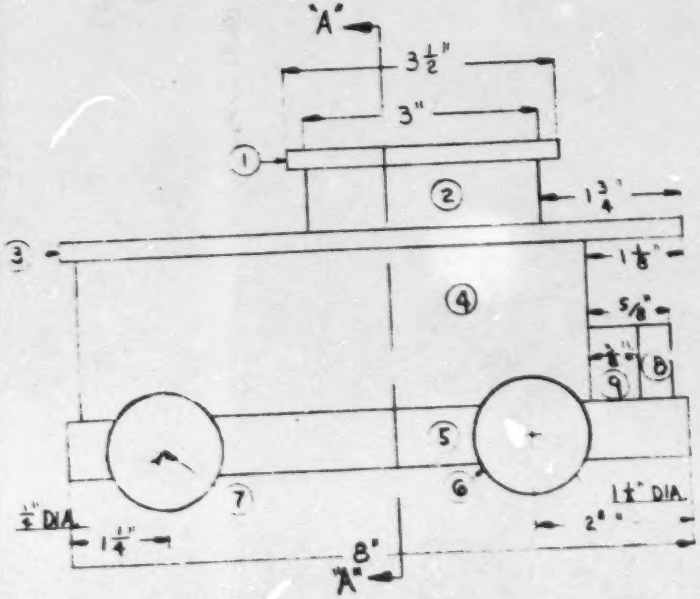
EXPLODED VIEW

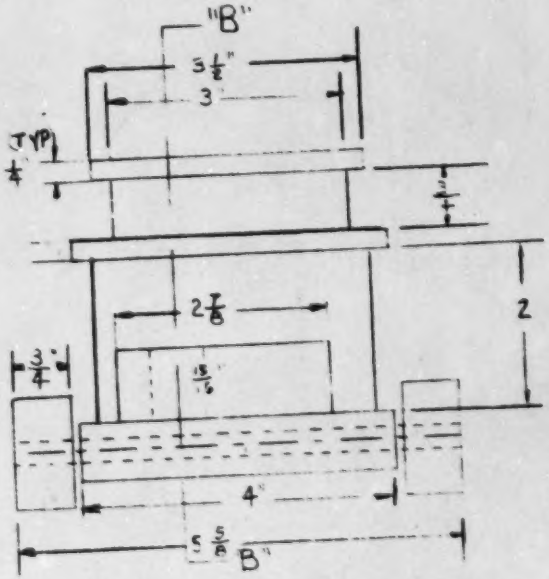




ISOMETRIC/OBLIQUE PICTORIALS

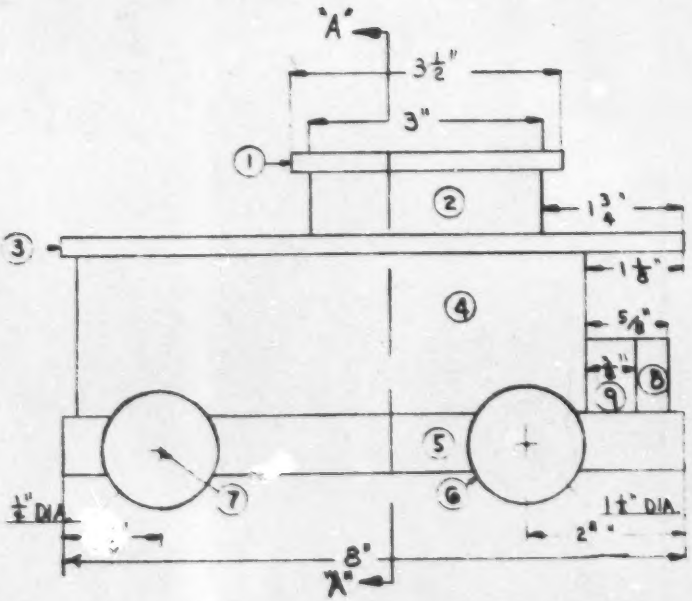
PART NO.#	NAME	SIZE	MATERIAL	NO. OF ITEMS
1	TOWER ROOF	$3\frac{1}{2}$" SQ x $\frac{1}{4}$"	MAPLE	1
2	TOWER	3" SQ x $\frac{3}{4}$"	"	1
3	BODY ROOF	8" x 4" x $\frac{1}{4}$"	"	1
4	BODY	$6\frac{3}{4}$" x $3\frac{1}{2}$" x 2"	"	1
5	BASE	8" x 4" x $\frac{3}{4}$"	"	1
6	WHEEL	$1\frac{1}{2}$ DIA x $\frac{3}{4}$"	"	4
7	AXLE	$5\frac{5}{8}$" x x $\frac{1}{4}$" DIA	STEEL	2
8	FRONT GATE	$\frac{15}{16}$" x $\frac{3}{8}$" x 2 x $\frac{15}{16}$"	MAPLE	1
9	SIDE GATE	$\frac{15}{16}$" x $\frac{5}{8}$" x $\frac{3}{8}$"	"	1



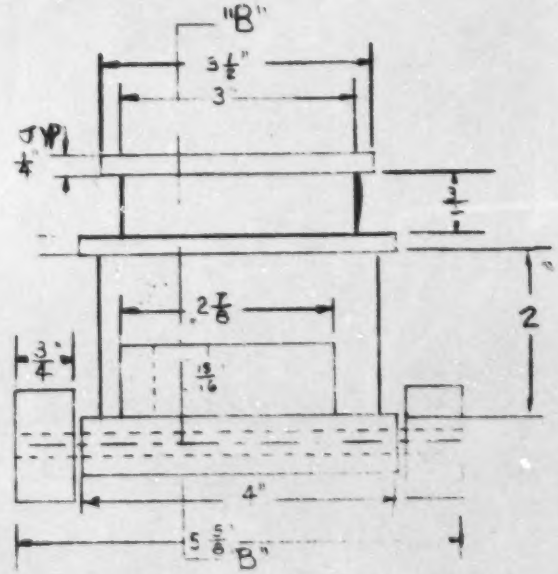


WORKING DRAWING

PART No.	NAME	SIZE	MATERIAL	No. OF ITEMS
1	TOWER ROOF	$3\frac{1}{2}$" SQ x $\frac{1}{4}$"	MAPLE	1
2	TOWER	3" SQ x $\frac{3}{4}$"	"	1
3	BODY ROOF	8" x 4" x $\frac{1}{4}$"	"	1
4	BODY	$6\frac{3}{4}$" x $3\frac{1}{2}$" x 2"	"	1
5	BASE	8" x 4" x $\frac{3}{4}$"	"	1
6	WHEEL	$1\frac{1}{2}$ DIA x $\frac{3}{4}$"	"	4
7	AXLE	$5\frac{5}{8}$" x x $\frac{1}{4}$" DIA	STEEL	2
8	FRONT GATE	$\frac{15}{16}$" x $\frac{3}{8}$" x 2 x $\frac{15}{16}$"	MAPLE	1
9	SIDE GATE	$\frac{15}{16}$" x $\frac{5}{8}$" x $\frac{3}{8}$"	"	1



BLUEPRINT



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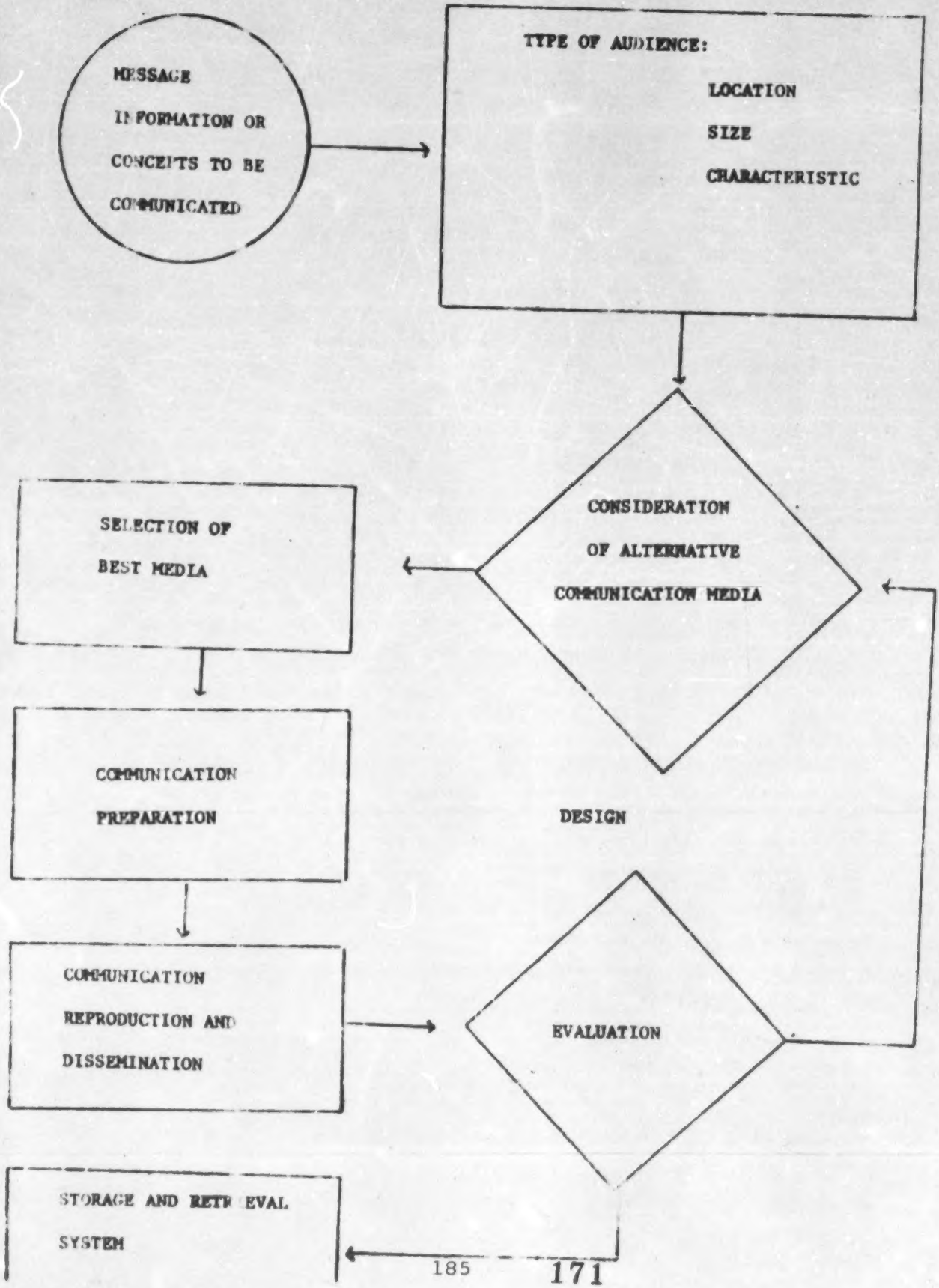
APERTURE CARD

FLOW CHART EXAMPLE



APPENDIX B

BIBLIOGRAPHY

and

AUDIO-VISUAL AIDS

and

RECOMMENDED EQUIPMENT

BIBLIOGRAPHY (PHOTOGRAPHY)

Bowler, Stanley W., Photography for Boys and Girls, Thomas Y. Crowell Co., New York.

Bridges for Ideas, The University of Texas, Austin, Texas.

Bryan-Daniel, J., Grafilm, An Approach to a New Medium. Van Nostrand Reinhold Co., New York.

Camera, C. J. Bucher, Ltd., Lucerne, Switzerland.

de Kieffer, R. E. and Lee W. Cochran, Manual of Audio-Visual Techniques, Prentice-Hall, Inc.

Deschin, Jacob, Fun With Your Camera, McGraw-Hill Book Co., New York.

Developing, Printing and Enlarging. Eastman Kodak Co.

DeWitt, Jack, Producing Industrial Films, A. S. Barnes and Co., Inc. Cranbury, N. J.

Dezettel, Louis, Amateur Photography, Editors and Engineers, Ltd.

Dick Blick Art Materials, P. O. Box 1267, Galesburg, Illinois.

East, Marjorie, Display for Learning: Making and Using Visual Materials, Holt, Rinehart, and Winston, New York.

Edmund Scientific Co., 300 Edscorp Building, Barrington, New Jersey.

Floyd, Wayne, ABC's of Developing, Printing and Enlarging, American Photographic Book Publishing Co., Inc.

Frankel, Godfrey, Shortcut to Photography, Sterling Publishing Co., Inc. New York.

Freeman, Mae Blacker and Ira M. Freeman, Fun With Your Camera, Random House, Inc., New York.

Griggs Educational Service, 1033 Via Madrid, Livermore, California.

Goldstein, Harry A., Basic Photography, DuPont, bulletin #129.

Hertzberg, Robert E., Photo Darkroom Guide, Universal Photo Book, Inc.

Horrell, C. Wm. and Robert A. Steffes, Introduction and Publications Photography: A Guidebook with Laboratory Exercises, Kenilworth Press, Glen Ellyn, Illinois.

How to Make Good Pictures, Eastman Kodak Co., Random House, Inc., New York.

Kemp, Jerrold E., Planning and Producing Audio-Visual Materials, Chandler Publishing Co., San Francisco.

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Kosky, Thomas Arthur, Creative Corrugated Cardboard, Pearon Publishers, Palo Alto, California.

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McCoy, R. A., Practical Photography, McKnight & McKnight Publishing Co., Bloomington, Illinois.

McGuirk, Donn P., Better Media for Less Money!, National Teacher Education Project, Scottsdale, Arizona.

Miller, Thomas and Wyatt Brummitt, This is Photography: Its Means and Ends, Doubleday and Co., Inc., Garden City, New York.

Minor, Ed and Harvey R. Frye, Techniques for Producing Visual Instructional Media, McGraw-Hill, New York.

Morgan and Lester, Graphic Photography, Morgan and Lester, New York.

Morlan, John E., Preparation of Inexpensive Teaching Materials, Chandler Publishing Co., San Francisco.

Perkins, Max, The Three Cent Color Slide, Max Perkins Productions, Mesa, Arizona.

Photo Tips for Simple Cameras, Eastman Kodak Co.

Popular Photography, Ziff-Davis Publishing Co., New York.

Randall, Reino and Edward C. Haines, Bulletin Boards and Display, Davis Publications, Inc., Worcester, Mass.

Rilla, Wolf, A-Z of Movie Making, Viking Press, New York.

Satterthwaire, Les, Laboratory Manual AV-411, A self-instructional manual designed for a laboratory situation; used at Arizona State University.

Smith, Victor C., Photography Workbook, J. B. Lippincott Co., Chicago.

Stettner, Louis, U. S. Camera's 35 mm Photography, U. S. Camera Publishing Corp., New York.

Visual Communications Curriculum Guide, Kansas State Department of Education.

Williams, Catherine M., Learning from Pictures, National Education Association, Department of Audiovisual Instruction, Washington, D. C.

FILMS

(The following films and filmstrips may be ordered from McGraw-Hill Book Co., 330 West 42nd Street, New York, New York.)

"Advanced Projection Control"
"Composition in Printing"
"Developing Roll Film"
"Developing Sheet Film and Film Packs"
"Print Contrast Control"
"Print Presentation"
"Projection Printing" (parts 1 and 2)
"Quality Control of Negatives" (parts 1 and 2
"Spot Printing and Dodging"
"Spotting of Prints"

(The following films and filmstrips may be ordered from Eastman Kodak Company, Sales Service Division, A-V Service, Rochester, New York 14650)

"Basic Graphic Arts Photography"
"Cameras and Careers"
"Camera Handling"
"How Film is Made"
"How to Develop a Negative"
"How to Make a Contact Print"
"How to Make an Enlargement"
"Photography at Work"
"Print-Finishing Techniques"

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Aubles, John W., Arithmetic for Printers, Charles A. Bennett Company, Peoria, Illinois.

Biegeleisen, J. I. and M. A. Cohn, Silk-Screen Stenciling as a Fine Art, McGraw-Hill Book Co., Inc., New York.

Broekhuizen, Richard J., Graphic Communications, McKnight & McKnight Publishing Co., Bloomington, Illinois.

Bruno, Michael, "What's Coming in Lithography", Graphic Arts Education, February, 1963, pp. 27-32.

*Carlsen, Darvey E., Graphic Arts, Charles A. Bennett Company, Peoria, Ill.

Chidester, Otis H., "Outline for a Graphic Arts Laboratory", School Shop Annual Industrial Arts and Vocational Education.

Cleeton, Glen U. and Charles W. Pitkin, General Printing, McKnight & McKnight Publishing Co., Bloomington, Illinois.

Cogoli, John E., Photo-Offset Fundamentals, McKnight & McKnight Publishing Company, Bloomington, Illinois.

Curwen, Harold and J. Brough, Printing, Penguin Books, Inc., Baltimore, Maryland.

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Eisenberg, James and Francis J. Kafka, Silk-Screen Printing, Taplinger Publishing Co., Inc., New York.

Faulkne, Ray, Art Today, Henry Holt & Co., Inc., New York.

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Hlasta, Stanley, Printing Types and How To Use Them, Rutgers University Press.

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Kosloff, Albert, The Art and Craft of Screen Process Printing, Bruce Publishing Company, Milwaukee, Wisconsin.

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Lithographer, U. S. Government Printing Office, Washington, D. C.

Lush, Clifford K., Junior Letterpress and Lithography, Charles A. Bennett Co., Inc. Peoria, Illinois.

Marinaccio, Anthony and Burl N. Osburn, Exploring the Graphic Arts, Princeton.

Mueller, L. W., A Workbook for Exploring Printing, Harlo Printing and Publishing Co., Detroit, Michigan.

The Pocket Pal, International Paper Company, New York.

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Pollack, Phillip, Printing Careers and Opportunities for You, Chilton Company.

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Shapiro, Charles, The Lithographers Manual, Graphic Arts Technical Foundation, Inc., Pittsburg, Penna.

Should Your Child Go into the Printing Industry? New York Life Insurance Company, New York.

Sternberg, Harry, Silk-Screen Color Printing, McGraw-Hill Book Company, Inc., New York.

Suggested Outlines for Courses of Study in Graphic Arts, International Graphic Arts Education Association, Washington, D. C.

Visual Communication Curriculum Guide, Kansas State Department of Education.

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*Highly recommended for Visual Communication

FILMS FOR PRINTED MEDIA

"Basic Principles of Printing," Miehle Technical Publication, 2011 West Hastings, Chicago, Illinois 60608. (Time: 23 minutes; B/W; describes printing methods, etc., using both the V-50X and MGD offset duplicators)

"Basic Reproductive Processes in the Graphic Arts," Vocational-Technical Center, 301 South Grove, Wichita, Kansas.

"Big City Paper," Motion Picture Bureau, Chicago Tribune, 33 West Madison St., Chicago, Illinois 60611. (Time: 31 minutes; Color)

"Blue Sky Thinking," Ulano Products Company, Silk-Screen Process Supply, 610 Dean Street, Brooklyn, New York 11238. (Time: 45 minutes; Color; describes the silk-screen processes)

"Draw Down," Sinclair and Valentine Co., 1212 Avenue of the Americas, New York, N. Y. 10036. (Time: 13 minutes; Color; describes the magnitude of the printing ink industry)

From Hot Metal to Cold Type," International Typographical Union, P. O. Box 157, Colorado Springs, Colorado 80901. (Time: 45 minutes; Color; describes the similarities and differences of each method of printing and their relationships to each other)

"From Type to Paper," Copley Productions. (Time: 29 minutes; Color; describes man's written records from the stone age to today)

"How to Be a Smooth Operator," 3 M Co., Printing Products Advertising, 250 Hudson Road, St. Paul, Minnesota 55119. (Time: 15 minutes; Color; describes the teaching of offset duplicator operators)

"How to Make a Good Impression," Harris-Seybold Company, 4510 East 71st Street, Cleveland, Ohio 44105. (Time: 24 minutes; Color; describes the offset lithographer process)

"An Invitation to Better Newspapers," Copley Productions. (Time: 25 minutes; Color; describes page makeup for newspapers)

"It's a Screen Printed World," Advance Process Supply Co., 400 N. Noble Street, Chicago, Illinois 60622. (Introduction to silk-screening)

"Let's Go To Press," Communication Department, The Goss Company, 5601 West 31st Street, Chicago, Illinois 60608. (Time: 24 minutes; Color; describes the history of the Goss Printing Press Company)

"A Look at Photo-Lithography," Eastman Kodak Co. (Time: 18 minutes; Color; traces the production of four color printing jobs in a lithography plant)

"Photo-Engraving Means Business," Eastman Kodak Co., 343 State Street, Rochester, N. Y. 14650. (Time: 16 minutes; Color; explains the techniques of four-color separation)

"The Picture's the Thing," Collins, Miller, and Hutchings, Inc. 333 West Lake Street, Chicago, Illinois 60606. (Time: 18 minutes; Color; describes the century old craft of photo-engraving)

"That the People Shall Know," Modern Talking Picture Service, Inc., 1212 Avenue of the Americas, New York, N. Y. 10056. (Time: 21 minutes; B/W; discusses newspaper, broadcast, magazine journalism, and America's growing communication industry)

"3001," The Goss Company. (Time: 24 minutes; Color; the story of the Metro-Offset Press and the Telegraph Herald in Dubuque, Iowa)

"You are a Printer," Miehle Technical Publications, The Miehle Company, 2011 W. Hastings, Chicago, Illinois 60608. (Time: 10 minutes; Color; depicts the Miehle 25 offset press)

"You are a Printer," Modern Talking Picture Service, 160 East Grand Avenue, Chicago, Illinois 60611. (Time: 10 minutes; Color: an introduction to any graphic arts course)

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Baker, Wilfred H., Photogrammetry, Ronald Press Company, New York.

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Elliott, Orville C., Programmed Learning Aid for Introduction to Data Processing, Homewood, Illinois.

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Fetter, William A., Computer Graphics in Communication, McGraw-Hill Book Co., Inc., New York.

French, Thomas E. and Charles J. Vierck, Fundamentals of Engineering Drawing, McGraw-Hill Book Co., Inc., New York.

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RECOMMENDED EQUIPMENT LIST

FOR VISUAL COMMUNICATIONS COURSE

1. Electric typewriter. Selectric preferred.
2. Spirit duplicator
3. Rubber stamp press
4. Cold type set
5. Paper shears or cutter
6. Offset duplicator press
7. Light table
8. Plate maker
9. Paper punch
10. Saddle stitcher
11. Jogger
12. Strip printer
13. Diazo printer-developer
14. Enlarger for 35mm and 2¼ film format
15. Darkroom sink with mixing valves
16. Rotary print dryer
17. Leroy lettering set
18. Basic darkroom equipment for b/w
19. 35mm SLR full frame camera
20. 35mm SLR half frame camera
21. 2¼" twin lens camera
22. Simple box camera
23. Copy camera and stand
24. T.V. camera and monitor set
25. Video tape recorder
26. Tripod and dolly
27. Cassette tape recorder
28. Silk-screen frames
29. Refrigerator
30. Drawing tables - basic equipment
31. Platen press 5" x 7"